

EUROMOD

COUNTRY REPORT



ITALY (IT)

2015-2018

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EUROMOD version I1.0+



EUROMOD is a tax-benefit microsimulation model for the European Union (EU) that enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country and for the EU as a whole.

EUROMOD covers the 28 Member States and is updated to recent policy systems using data from the European Union Statistics on Income and Living Conditions (EU-SILC) as the input database, supported by DG-EMPL of the European Commission.

This report documents the work done in one annual update for Italy. This work was carried out by the EUROMOD core developer team, based in ISER at the University of Essex, in collaboration with a national team.

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The results presented in this report are derived using EUROMOD version I1.0+. EUROMOD is continually being improved and the results presented here may not match those that would be obtained with later versions of EUROMOD. For more information, see:

<https://www.euromod.ac.uk>

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INTRODUCTION

This country report gives an overview of the Italian country component of EUROMOD. The report presents the basic information on the Italian tax-benefit system valid in 2015-18 (as of 30th June in corresponding year), it explains which taxes and benefits are simulated in EUROMOD, together with the key aspects of implementation, and how well the model represents actual income distribution and monetary aggregates.

The current Italian country model uses the Italian Statistics on Income and Living conditions 2016 (IT-SILC), which is the national component of EU-SILC survey with more detailed variables¹.

The report adds to and builds on the seven earlier reports:

- i. Ceriani and Gigliarano (2010), which covered policy years 2005-2008 based on the Italian Survey of Income and Living conditions 2006
- ii. Ceriani and Gigliarano (2011), which covered policy years 2006-2009 based on the Italian Survey of Income and Living conditions 2007
- iii. Ceriani, Figari and Fiorio (2012), which covered policy years 2007-2010 based on the Italian Survey of Income and Living conditions 2008
- iv. Ceriani, Figari and Fiorio (2013), which covered policy years 2009-2012 based on the Italian Survey of Income and Living conditions 2010
- v. Ceriani, Figari and Fiorio (2014), which covered policy years 2009-2013 based on the Italian Survey of Income and Living conditions 2010
- vi. Ceriani, Figari and Fiorio (2015), which covered policy years 2011-2015 based on the Italian Survey of Income and Living conditions 2012
- vii. Ceriani, Figari and Fiorio (2016), which covered policy years 2013-2016 based on the Italian Survey of Income and Living conditions 2014
- viii. Ceriani, Figari and Fiorio (2017), which covered policy years 2014-2017 based on the Italian Survey of Income and Living conditions 2015

The current report provides information on the new dataset, updates information on policy rules as well as validation results. Major changes have been also made in the structure of the report.

1. BASIC INFORMATION

1.1 Basic information about the tax-benefit system

- The tax-benefit system is a national system, with some differences among Regions and Municipalities due to some local autonomy, mainly related to the *Personal Income Regional Additional Tax* and the complex system of *Local Property Taxes*.
- Starting from the 7th April 2011, the public policy calendar has changed, according to the European Semester approved by Ecofin. Starting from then, the tax system is mainly modified by the *Stability Law* (Disegno di Legge di Stabilita') by the 15th of October,

¹ EUROMOD input data is based on Italian SILC data, provided by Istat in the framework of the research agreement signed between Istat, Università degli Studi dell'Insubria and Università degli Studi di Milano on 2018-May-31st, under condition that statistical confidentiality rules and personal data protection are guaranteed.

and by the *Associated Government Bills* (Disegni di Legge Collegati) approved by the 31st of January each year.

- The State pension age in 2009 was 58 both for men and women. Starting for the 1st January 2012 the rules changed substantially. Male employees of the private sector, self-employed and temporary workers (“para-subordinati”): 66 years. Male and female civil servants: 66 years; Female employees of the private sector: 62 years; Female self-employed and temporary workers (“para-subordinate”): 63 years and 6 months. The retirement age is subject to a gradual increment up to 66 years and 7 months for both men and women in 2018, with further adjustment depending on the evolution of life expectancies. New rules have been introduced with the Budget Law 2018.
- Starting from the Academic year 2010/2011, mandatory education requires achieving upper secondary degree or a vocational degree of at least three years duration within age 18. A 15 years old child can start working and completing her mandatory education by a year of apprenticeship.
- A child is defined *dependent child* if she is a relative or a relative-in-law, and has an income of less than 2.840,51 euro, regardless of the age and cohabitation status.
- The income tax system is individual.
- Incomes from capital gains and return on capital are mainly subject to separate taxation
- By the 31st July each year taxpayers must fill their *Personal Income Tax* return with respect to incomes received the previous calendar year.
- The tax system does not provide any indexation. Thresholds for means-tested benefits and contributions are yearly updated by the National Statistical Office taking into account the consumer price index for working class households.
- The means-tested benefit system (mainly at local level) assesses entitlement according to benefit unit income and, in some cases, according to a combination of income and wealth (*ISEE – Indicatore della Situazione Economica Equivalente, reformed since January 2015*). The benefit unit is the family, made of the couple, or the lone parent plus all the dependent family members.

1.2 Social Benefits

Seeking for clearly and completeness, which is a challenging task in a complex and fragmented system as the Italian one, we describe the bundle of social benefits using the following classification criteria:

- **Social Insurance**
 - *Benefits related to the end of the working activity*
 - *Benefits related to the temporary suspension of the working activity*
 - *Benefits related to the reduction in working ability, family and social allowances*
 - *Other benefits*
- **Social Assistance**
 - *Family Support*
 - *Pro-poor allowances*
 - *Benefits related to the reduction in working ability*
 - *Other benefits*

We adopted the traditional distinction between Social Insurance and Social Assistance based on the financing means: the first one is funded by workers’ contributions and the benefits are therefore linked to the individuals salary history; the second one, instead, is inspired by a condition of need of the recipient, and the benefit is disconnected with any contribution or working history.

Here we are not concerned about the fund’s source, which can be either the National Institute of Social Security (*INPS*), the State or the Local Institutions (Regions, Provinces and Municipalities).

1.2.1 Social Insurance: Benefits related to the end of the working activity

Old-Age Pension (*Pensioni di Vecchiaia – poa*)

The old-age pension is related to a *pay-as-you-go* social security program. The old-age pension is obtained when three conditions are contemporarily fulfilled: (i) age; (ii) minimum contribution; (iii) end of working activity (this last condition does not hold for self-employed individuals). The system has been radically changed in 1995 from a retributive to a contributive one. Under the contributive system, the pension is linked to the individual contribution righted up by applying a rate related to the gross domestic product's growth.

With the Monti-Fornero reform, from January 2012 all pensions are calculated according to the contributive system and the retirement age is subject to a gradual increment up to 66 years and 7 months for both men and women in 2018, with further adjustment depending on the evolution of life expectancies.

Invalidity Pension (*Pensioni di Invalidità – phl*)

The invalidity pension is given to employees or self-employed individuals suffering from some physical or mental disease which leads to an inability to work. If the disease reduces the ability to work by one third or more, the worker is entitled to receive the **invalidity benefit** (*assegno di invalidità*). The invalidity benefit is allowed for a period of three years and it can be renewed if the inability persists. After three extensions it is automatically renewed. If, instead, the working ability is totally cleared, the worker is entitled to receive the **inability pension** (*pensione di inabilità*).

Survivors' Pension (*Pensioni ai Superstiti – psu*)

The survivors' pension is the benefit due to eligible family members of a deceased insured worker or retired individual.

Eligible family members are:

- the spouse, also if separated or divorced but not re-married;
- dependent children (natural, adoptive, legitimate, in-law), who are minor, students and disable;
- dependent grandchildren;
- 65 years old parents, if there are no eligible spouse, dependent children or grandchildren;
- unmarried brothers and sisters if there are none of the above.

Quotes of pension differ among eligible members and the pension could be reduced over given amounts.

Unemployment benefit (*Indennità di disoccupazione – bunct02*)

In the Italian system we count five unemployment benefits:

- The **ordinary unemployment benefit** (*indennità di disoccupazione ordinaria*);
- The **unemployment benefit with minor requirements** (*indennità di disoccupazione con requisiti ridotti*);
- The **ordinary agricultural unemployment benefit** (*indennità di disoccupazione agricola ordinaria*);
- The **agricultural unemployment benefit with minor requirements** (*indennità di disoccupazione agricola con requisiti ridotti*);
- The **special benefit for agricultural and building unemployment** (*trattamenti speciali per disoccupazione agricola ed edilizia*)

The unemployment benefit is granted to insured employees who have been dismissed. The benefit is not granted to resigned employees, unless the resignation is due to *good cause* as, for example, missed wage payment, sexual harrasment, mobbing. The benefit is also given to employees who have been suspended for transitory reasons and causes not due to employers or employees behaviour.

Eligible individuals are employees who have paid (i) contribution against unemployment for at least two years or (ii) 52 weeks of contribution in the two-years period before the date of work suspension.

The benefit amount and the duration of the treatment is different according to the age of the employee. For a detailed description of the ordinary unemployment benefit, we remand to section 2.

The benefit is no more due when the employee (i) has received the benefit for all the allowed days; (ii) starts a new employment; (iii) retires; (iv) refuses an employment proposal with a wage non less than the 20% of the previous one; (v) refuses to be enrolled in social activities; (vi) is erased from the employment lists.

From 2013 the ordinary unemployment benefit has been replaced by ASPI (and mini-ASPI) which is relatively more generous in terms of coverage and adequacy.

Procedure for mobility and collective dismissals (*Mobilita' – bunct02*)

The procedure for mobility and collective dismissal is a benefit in favour of employees who (i) have already been granted of redundancy payment for all the allowed period; (ii) have been dismissed as a result of a firm policy of staff reduction or production transformation; (iii) have been dismissed for firm shutdown.

The difference between the procedure for mobility and collective dismissals and the redundancy payment is that the latter is an alternative to the employee dismissal, the former comes after the employee dismissal.

Eligible individuals are employees who: (i) have been hired with a long-term contract; (ii) have been enrolled in the mobility lists made out by the Regional Labour Office on the basis of troubled firms reports; (iii) have at least twelve months service in the same firm; (iv) have worked at least for six months in the same firm.

The duration of the allowance is different according to the age of the employee and the firm geographical position.

In general, the benefit cannot be granted for more than the employee service period.

The benefit amount is proportional to the redundancy payment that the employee received (or would be entitled to receive) in the period right before the dismissal.

1.2.2 Social Insurance: Benefits related to the temporary suspension of the working activity

Redundancy payment (*Cassa Integrazione Guadagni – bunct01*)

The Redundancy payment is a benefit in favour of troubled firms which provides to employees an income substitute for wage income.

There are types of redundancy payments:

- The **ordinary redundancy payment** (*cassa integrazione ordinaria*)
- The **extra-ordinary redundancy payment** (*cassa integrazione straordinaria*)
- The **building redundancy payment** (*cassa integrazione edilizia*)

Eligible individuals are blue collars, white collars and executives (apprentices excluded) whenever working activity is suspended or reduced because of (i) transitory reasons and causes not due to employers or employees behaviour; (ii) temporary market stagnation.

The benefit amount is the 80% of the gross wage, subject to upper limits, for the lost working hours. For the majority of firms the redundancy payment is granted for a maximum period of 13 weeks to 12 months (according to possible extensions).

Salary supplement for agriculture workers (*Integrazioni salariali a favore dei lavoratori agricoli – Included in bunct01*)

It is an instrument for supporting firms when it is not possible to carry on working and for pledging some income to the employees. Eligible individuals are employees (blu collars, white collars and executives) working full time in farms for at least 180 days per year.

The benefit amount is equal to the 80% of the wage received in the month before the working suspension, subject to upper limits, and it is granted for at most 90 days. The benefit is directly paid by INPS to the employees.

Marriage leave (*Assegno per congedo matrimoniale – Included in yem*)

It is a benefit granted for the wedding of an employee. Entitled individuals are: (i) employed individuals (not white collars) working in manufacture and industrial sector or a cooperative society (also workers at home and apprentices) simple soldiers and non-commissioned officers who have been working at the wedding day from at least one week; (ii) workers and seamen who resigned to get married; (iii) unemployed workers and seamen who at the wedding day have worked at least 15 days in the previous 90; (iv) seamen at military service who have been enrolled for 15 days in the 90 before the recall to arms or the end of the draft. Both spouses are granted if one is entitled. The amount is given without income test and it is equal to seven salary days (eight for seamen). Employers, on behalf of INPS, pay out the benefit at the beginning of the leave period. For unemployed individuals or called to arms it is paid by INPS.

1.2.3 Social Insurance: Benefits related to the reduction in working ability, family and social allowances²

² In addition to the benefits listed in the section.

Special Sickness allowances (*Indennità e assegni per malattia speciale*). It is an allowance substitute for the wage granted to employees and family members suffering of tuberculosis. The cost is beared by INPS, while the national health system covers the sanitary assistance. Eligible individuals have at least a year of contribution, then other conditions apply according to the type of allowance. The **daily allowance** (€12 or €6 for the family members) is due to the worker who does not receive the full wage during the hospital or outpatient treatments. The **post-sanatorium allowance** (€20 or €10 for the family members) is due to recovered or stabilized individuals after an hospitalization of no less than 60 days, or after an outpatient treatment which lasted at least 60 days and the worker did not work for 60 days, or after a treatment both at hospital and outpatient of at least 60 days. The **treatment or support allowance** (€ 80.67 in 2009) is supplied for two (renewable) years to workers affected by tuberculosis whose earning capacity is reduced by more than one third and who do not receive a continuative full-time wage. The **Christmas allowance** is given to individuals who have benefited in the month of December of at least one day of tuberculosis benefit, and the amount equals 30 days of the most favorable benefit received in December.

Death Allowance (*Rendita per morte*). If the accident at work causes the employee death, the family members are entitled to receive an allowance equal to the 100% of previous year wage, divided as following: 50% to the spouse and 20% to each child (in any case it cannot exceed the 100% of the wage).

Hours of Rest (*Riposi orari, ex allattamento*). Within the first year of age, the mother (also the adoptive mother) is entitled to two hours of rest each day if the working hours are at least six, one if the working hours are less than six. In case of multiple delivery or adoption, the hours of rest are doubled. While, in case the working mother benefits of a childcare supplied by the employee in the working place or close to it, the permit is halved. The hours of rest are in every respect considered as working hours. These hours can be granted also to the working father if it is the only guardian, in alternative to the mother, if the mother is not employed, or if the mother is dead or seriously injured.

Daily permits for blood and spinal cord donors (*Permessi giornalieri per donatori di sangue e midollo*). Blood and spinal cord donors are entitled to receive the full wage for the day they abstain from work to donate. INPS refunds the employers.

Daily permits for mountain and spelaeological rescuers (*Permessi giornalieri per i volontari del soccorso alpino e speleologico*). Employees voluntary mountain and speleological rescuers are entitled to receive the full wage for the day the leave work. Self-employed individuals are entitled to receive 1/22 or 1/26 of the average monthly earning in the industrial sector, fixed every year by ISTAT.

Sickness leave (*Indennità di Malattia – Included in yem*)

The sickness leave is an allowance substitute for the wage which is granted starting for the fourth sickness day of the worker and for no more than 180 days each year. Eligible to receive the benefit are private sector blue-collar, white collar of tertiary and services sectors. Moreover, it is supplied also to unemployed and suspended individuals within 60 days from the end of the working activity (except for short-term workers). The benefit is granted without income test and it is equal to the 50% of the average daily wage for the first 20 days of the sickness period, and to the 66.66% for the subsequent days of sickness related to the same disease or relapse.

Inability Pension (*Pensione di Inabilita' – phl*)

It is a pension owed by employees or self-employed individuals suffering from some physical or mental disease which leads to an inability to work. Entitled individuals have a contributory history of at least five years, three of which paid in the five years before the pension request. Moreover, to be entitled, an individual cannot work, been enrolled in a professional register or in the lists of farmers or self-employed workers.

Inability Allowances for Civil Servants (*phl*)

Civil servants can access to different inability allowances or pensions. In the following we briefly summarize the most important ones.

- **Absolute and Permanent Inability to the assignment** (*Pensione per inabilità assoluta e permanente alla mansione*). The inability to the assignment is limited to the type of task the worker is assigned to, and it gives right to receive the pension only in the case the employee cannot be assigned to a different task at the same working status. Entitled individual (i) have been civil servants for at least 15 years (20 years if enrolled in Local Institutions or Health Institutions), (ii) have been recognized unable to the assignment by a special Committee and (iii) have been dismissed because of the disability. The benefit amount is computed with the same rules as the ordinary old-age pension.
- **Absolute and Permanent Inability to profitable activity** (*Pensione per inabilità assoluta e permanente a proficuo lavoro*) It is granted to workers who have been employed for more than 15 years who suffered by a disability which is not completely disabling, but enough disabling to prevent individuals from being uninterrupted profitably enrolled.
- **Absolute and Permanent Inability to work** (*Pensione per inabilità assoluta e permanente ad attività lavorativa*) After the clinic recovery, INAIL (the National Institute for the Insurance against accidents at work) checks whether the worker has been permanently injured and to what extent. If the inability is greater than the 11%, the worker is entitled to receive an allowance proportional to the degree of disability and his wage in the year before the accident. In case of a worsening in the conditions, the worker can ask for a revision of the allowance. The allowance is computed by summing up two components: a workers' compensation for the biological disability and an indemnity for the economic consequences of the accident. Entitled employees have at least five years of contribution.
- **Direct Disability Pension** (*Pensione Diretta Privilegiata*) The direct disability pension is an allowance granted to employee who have been disabled because of the working activity. The benefit amount is proportional to the infirmity extent and ranges from 8/10 to 1/3 of the pensionable wage. Slightly different rates apply to local institutions' servants.

Family Allowance (*assegni familiari – bfacpwc_s, bfacpxc_s and bfalp_s*)

The Family Allowance is targeted to families of employees and pensioners with family incomes below determined thresholds. The thresholds and the amounts of the benefit are different according to the household composition and number of members, and are fixed every year by Law. This benefit is simulated and we refer to section 2.3.1 for a detailed description.

Maternity Allowances (*Included in yem, yse or bmase and bmals*)

Italian law provides two maternity allowances: the **mandatory maternity leave** (*Indennità per astensione obbligatoria*) and the **parental leave** (*Indennità per astensione facoltativa o congedo parentale*). Both allowances are subject to recent reforms (2015) not covered in this report. Moreover, there are a **State** and a **Municipalities dependency benefits** (*Assegno di maternità dello Stato e dei comuni*).

- **Mandatory Maternity Leave Allowance** (*Indennità per astensione obbligatoria – included in yem or yse*)

It is a substitute for the wage and it lasts at most five months, divided in two periods: two months before and three months after the delivery. If the health status of the worker is fine and the working conditions do not harm the future mother and the baby, the period of mandatory leave before the delivery can be shortened to one month, and therefore the period after becomes four months.

For the self-employed mothers, there is no mandatory leave from work.

Entitled to receive the allowance are employee mothers, self-employed mothers enrolled in the lists of the craftsmen, wholesale traders, farmers, who paid the corresponding social contributions, and some temporary workers depending on their contract.

For the employees the allowance is the 80% of the average daily wage. For the self-employed mothers, it is the 80% of the *conventional* daily remuneration, which are fixed each year by law.

- **Parental Leave** (*Indennità per astensione facoltativa o congedo parentale – included in yem or yse*)

Each parent can leave from work until the child is eight years old. The leave cannot exceed jointly for the two parents ten (to eleven) months. The benefit applies also to parents of an adopted child, with different age limits: during the first three years after the adoption, until the child is twelve years old, for a maximum of six (seven for the father) months or ten (to eleven) months if the leave is cumulated between the two parents. If the child enters in the family when she is 12, the age limit is extended to 15.

Entitled to request the parental leave are:

- (i) Employed mothers (unless they are unemployed or suspended, employed in domestic and familiar services or working at home) who can leave up to a continuative or fragmented period of up to six months until the child is eight years old;
- (ii) Employed fathers
- (iii) Lonely parents up to ten months
- (iv) Self-employed mothers who can leave for three months within the first year of the child life.

The allowance is granted without income test for at most six months cumulated between the parents within the first three years of the child.

If the parental leave exceeds six months, from age three to eight, the allowance is means tested: the income of the applicant parent cannot be higher than 2.5 times the minimum pension fixed by law in the year of the request.

The parental leave allowance is the 30% of the average daily wage.

- **State Maternity Benefit** (*Assegno di Maternità concesso dallo Stato*)

It is a benefit granted to mothers with Italian citizenship, EU citizenship or extra-EU citizenship and a long-term residence permit, for each natural or adopted child.

Eligible for the allowance are: (i) working mothers who have at least three months of contribution in the last 18 to 9 months before the delivery (or the adoption); (ii)

unemployed mothers if the period between the loss of the social insurance and the delivery or adoption) is shorter than nine months; (iii) mothers who voluntarily resigned during pregnancy and have at least three months of contribution in the last 18 to 9 months before the delivery (or the adoption); (iv) mothers who have had some allowances from INPS (for example unemployment benefit or sickness benefit), provided not much time has passed (and in any case no more than nine months).

The State allowance is given to eligible mothers without income test. The Benefit Amount was 2.082,08 in 2014, 2.086,24 in 2015, 2.086,24 in 2016 and in 2017 (INPS. circ. 44/2014, 78/2015, 51/2016, 70/2017).

- **Municipalities Maternity Benefit** (*Assegno di Maternità concesso dai Comuni*)
Maternity allowance of the municipality of residence for each child born from or adopted by a woman who is a citizen of an EU or extra-EU country (with a residence permit). See section 2.3.2 for details.

Family leave for severe disability (*Congedo retribuito per assistenza a familiari in condizione di handicap grave – Included in yem*)

It is a benefit granted to (in order of eligibility) employed parents, siblings, children, spouse of an individual affected by severe disability. The benefit is equal to the last wage and comprehends the figurative social security contribution. It is granted for at most two years (consecutive or apportionable) and until an annual maximum which is linked to the average growth rate of the consumer price index for working-class households, elaborated by the National Statistical Office (*ISTAT*). Starting from 2009, the benefit is also granted to the son or daughter living with the severe disabled parent.

1.2.4 Social Insurance: Other Benefits

Compensation benefit (*Pensioni Indennitarie – phl*)

The compensation benefit is given to workers disabled by an industrial accident.

War Pension (*Pensione di Guerra – phl*)

The benefit is given by the Ministry of Economy and Finance to disabled citizens or to eligible family members of a deceased citizen because of war events.

1.2.5 Social Assistance: Family Support

Family Allowance for families with at least three children (*Assegno di sostegno per nuclei familiari con almeno tre figli minori – bchot*)

The Support Benefit for families with at least three children is granted by the municipalities and paid by INPS in 13 monthly instalments. The means testing criterion to be entitled of the benefit was based on the Indicator of Economic Situation (*ISE*) until 2014 and on the ISEE (Indicator of Economic Equivalent Situation, which is equal to the ISE divided by the equivalized dimension of the family) starting in 2015. Monthly Allowance and means test are summarized in the following table.

	Monthly Allowance	ISEE, €
2015	141,30	8.555,99
2016	141,30	8.555,99
2017	141,30	8.555,99
2018	142,85	8.650,11

Source: INPS 64/2015, INPS 55/2017, INPS 35/2018

Family Allowance for families with at least four children (*Assegno di sostegno per nuclei familiari con almeno quattro minori – bchot*)

In 2015, the Support Benefit for families with numerous children has been modified to include an additional allowance for families with at least four children. For a technical mishap, the bonus has been paid only later, in 2016.

	Yearly Allowance	ISEE, €
2016	500	8.500

Source: GU n. 35 del 12-02-2015

New born bonus (Bonus bebe'). A monthly allowance of €80 (€60.00 per year) is granted for each child born or adopted from January 1, 2015 to December 31, 2017, paid up to the end of the third year of age or the third year of entry in the household in the case of adoption. For those born in 2018 the bonus is recognised up to the first year of age. For families with a ISEE income not exceeding €7,000 per year the annual amount of the bonus is €920. For families with a ISEE between €7,000 and €25,000 per year the annual amount of the bonus is €60.

Mother bonus (*premio alla nascita*)

Effective January 1st 2017, an allowance of 800 euro, excluded by the PIT tax base, for the birth of each child or adoption of minors.

Day-care Bonus (*Bonus asilo nido*)

A yearly bonus of 1,000 euro is issued to all children born on or after January 1st 2016 to pay for day-care tuition fees until 3 years of age.

Scholarships and Free Textbooks Supplies (*Fondi destinati all'erogazione di borse di studio in favore degli alunni nell'adempimento dell'obbligo scolastico e nella successiva frequenza della scuola secondaria e fornitura, anche in comodato, dei libri di testo in favore degli alunni della scuola secondaria superiore – bed*)

The Ministry of Public Education gives each year funds to the regional scholastic offices to finance scholarships and free textbooks supplies.

For the scholarships, eligible students must be enrolled in primary or secondary State or equally recognized institutions and live in families with poor economic status (the threshold is fixed by each region).

As for the free textbooks supplies, eligible students are enrolled in lower secondary schools (grade 6 to 8) and higher secondary schools. Moreover, they live in families whose income is below the threshold fixed each year by law (15,493 euro in 2009/2010, *Ministry of Education, D.D. 11.06. 2009*).

Note that textbooks for primary education are free of charge for everybody.

1.2.6 Social Assistance: Pro-poor Allowances

Social Pensions and Social Allowances to individuals older than 65 (*Assegni sociali a ultra sessantacinquenni – poamt_s*)

The social pension has been substituted in 1996 by the Social Allowance to individuals older than 65. It is a benefit granted to poor individuals older than 65 years without any income source or an income less than the social allowance. Eligible individuals are Italian resident citizens, San Marino residents, political refugees, EU citizens resident in Italy and extra-EU citizens with long-term residence permit. The monthly amount is related to the income level and the family status of the entitled individual and it is index-linked to the minimum pensions granted by INPS. We refer to section 2.3.4 for a more detailed description.

Minimum Insertion Income (*Reddito Minimo di Inserimento – bsa00*)

The Minimum Insertion Income was introduced in 1999 as an experimental policy to tackle poverty and social exclusion. The policy was originally limited to 39 municipalities in the two-years period 1999-2000, and subsequently extended for the period 2001-2002 to 267 new local administration, for a total of 306 municipalities. For the second period, the Ministry of Labour and Social Policies has allocated €180,759,914.68 in 2001 and €222,076,466.61 in 2002. These funds had to be originally used within the end of 2004, but this deadline has been postponed first to the 30th of April 2006 and finally to the 30th of June 2007, to give the possibility to the municipalities still having some money to use it.

Eligible individuals either do not have any income or have an income below the fixed threshold. The threshold was then adjusted by using the following equivalent scale to take into account the number and type of family members (for example, for one-individual family the equivalence scale is 1 and the income threshold €278.88, while for a two-individuals family, the equivalence scale is 1.5 and the income threshold is €437.84)

Family Members	Equivalence Scale	Threshold (2002), €
1	1.00	278.88
2	1.50	437.84
3	1.69	568.92
4	2.06	686.04
5	2.40	794.81

The equivalence scale was then increased of 0.35 for each other component, of 0.2 if there is just one parent and children aged below 18, of 0.5 for each disabled component and of 0.2 for families with children aged under 18 and working parents. Income taken into account for the means test is the sum of incomes of all family components. By law, employment income accounts only for the 75%.

The benefit amount is the difference between an individual monthly income and the threshold. Although the experiment has been dismissed, the Minimum Insertion Income is still in place in some Italian regions, for instance in Trentino Alto Adige.

In 2016, €380 million will be allocated for an experimental Programme for active inclusion (*sostegno all'inclusione attiva - SIA*), aimed at overcoming the condition of poverty, inclusion/reintegration working and social inclusion. The SIA is articulated in a monthly allowance to families under serious economic distress and it is conditional to the participation to programs of social and working activation in the municipality of residence. The allowance is transferred bi-monthly and its amount depends on the composition of the beneficiary's family, as summarized in the following table.

Family Members	Monthly amount
1	80
2	160
3	240
4	320
5 or more	400

Source: INPS, circ. 133/2016.

From January 1st, 2018 a new national measure against poverty and social exclusion is in place and it is called *Reddito di inclusione REI*. It is expected to be replaced by a new measure, *Reddito di Cittadinanza RdC*, from 2019. We refer to section 2.3.8 for a more detailed description.

Housing Benefit (*bho*)

Regions dispose on monetary transfers in order to promote the purchase of the main residence or to help paying the rent (different names are given to these transfers: *Buono casa per le giovani coppie* in Emilia Romagna, *Mutui a Tasso Zero per le Giovani Coppie* in Veneto, *Risparmio Casa* in Trento; source: IreR 2005); such contribution is usually addressed to special

kinds of households, such as young couples, couples with young children and single mothers. The contribution is aimed either to reduce the mortgage interests paid for the purchase of the main residence or to provide a sporadic cash benefit; its amount changes among Regions. Two are the main criteria followed in order to provide such contributions: eligibility criteria (means testing), and selectivity criteria (rankings that necessarily rule eligible individuals out, because of budget constraints). The eligibility criterion differs according to the Regions: differences are mainly in the maximum age allowed for one or both members of the couple and in the maximum ceiling for the household's income and wealth. Regions have access to a special location-fund (*Fondo nazionale per il sostegno all'accesso alle abitazioni in locazione*), the consistency of which is fixed by law each year, as summarized in the following table. The variable included in the dataset (*bho*) is related to rent-related benefits, mortgage benefits plus a residual component (anything which is not rent-related).

Basic Needs Debit Card (*Carta acquisti, bsa01*)

It is a pro-poor allowance deposited bi-monthly on a special debit card. The card can be used for purchases in grocery stores, superstores, pharmacies or gas and electricity bills in postal offices. Moreover, there are agreements with some shops which allow a 5% discount. The total allocated fund allocated to the card was €250 million per year from 2015, further increased for 2016 by other €380 million. Entitled individuals are poor citizens older than 65 or younger than 3 having an Indicator of Equivalent Economic Situation (*indicatore della situazione economica equivalente - ISEE*) below a threshold defined yearly. Starting from 2014 the social card was extended to EU and extra EU citizens and their families, as well as to foreigners having a residence permit for EU long-term residents. The benefit amount is 80 euro every two months. This is partly and gradually replaced by the *Reddito d'Inclusione*.

Young Culture Card (*Carta Giovani per la Cultura*)

An electronic card with a maximum amount lump sum of €500 has been issued for the year 2016, 2017 and 2018, for all Italian citizens or citizens of other EU Member State living in the country, who turn eighteen years old. The card was valid to be used for theatrical and cinematographic representations, for the purchase of books and access to museums, exhibitions and cultural events, monuments, galleries, archaeological sites, natural parks and live entertainment.

1.2.7 Social Assistance: Benefits related to the reduction in working ability³

The so-called civil disabled persons are entitled to receive a benefit (*pdi*) without any working and contributive history. Entitled to receive the benefit are Italian citizens, EU citizens or extra-EU citizens with a long term residence permit, acknowledged as disabled by special committees of a Local Health Institute (*Azienda Sanitaria Locale - ASL*). In particular, the following different allowances are granted to different disabled individuals.

Civil Infirmary Allowance (*Prestazione di invalidita' civile*)

Eligible individuals are (i) Italian citizens and foreigners with long-term residence permit, (ii) with total (100%) invalidity, (iii) aged between 18 and 65 and three months, (iv) with an income not larger than the fixed thresholds (16.532,10 in 2015, 2016 and 2017; 16.664,36 in 2018). The allowance is incompatible with other benefits granted for the same invalidity reason, as war benefits working and other invalidity benefits supplied by other social security institutions. The allowance, granted for 13 months each year, was 279,47 euro in 2015, 2016 and 2017, 282,55 euro in 2018 (*INPS circular letters 210/2015, 8/2017, 186/2017*).

³ In addition to the benefits listed in the section. **Allowances for Earthquakes Victims, Libyan re-entered individuals and ex Army employees** (assegni per i colpiti da terremoti, rimpatriati dalla Libia e indennità ai dipendenti delle ex FF.AA.)

Monthly Assistance Allowance (*Assegno mensile di assistenza*)

Eligible individuals are (i) Italian citizens and foreigners with long-term residence permit, (ii) with an invalidity between 74% and 99%, (iii) aged between 18 and 65 and three months, (iv) not capable of working, (v) without any other allowances from any social security institution (vi) with an yearly income not larger than the fixed thresholds (4.795,57 euro in 2015 and 2016, 4.800,38 euro in 2017, 4.853,29 euro in 2018). The allowance, granted for 13 months, was 279,47 euro in 2015, 2016 and 2017, 282,55 euro in 2018. (*INPS circular letters 210/2015, 8/2017, 186/2017*).

Accompany Benefit (*Indennita' di accompagnamento*)

Eligible individuals are (i) Italian citizens and foreigners with long-term residence permit, (ii) with a total invalidity (100%), (iv) not able to walk or not able to do daily life activities. The benefit is granted for 12 months without any income mean test, and it was 507,49 euro in 2015, 512,34 euro in 2016, 515,43 euro in 2017, and 516,35 in 2018. (*INPS circular letters 7/2014, 210/2015*).

Frequency Benefit (*Indennita' di frequenza*)

It is a benefit awarded for 13 months to minor citizens living in Italy and foreigners with long-term residence permit, who are enrolled in schools, vocational schools, rehabilitative institutions, having persistent troubles in daily life activities or having a ear damage of more than 60 decibel in the healthiest ear. The amount was 275,87 in 2013, 279,19 euro in 2014, 279,47 euro in 2015, in 2016 and in 2017, 282,55 euro in 2018. The benefit is means tested and the personal income of the eligible recipient cannot exceed 4.800,38 euro in 2015, in 2016 and in 2017 and 4.853,29 euro in 2018 (*INPS circular letters 7/2014, 210/2015, 8/2017,186/2017*).

Sightness Pension (*Pensione di cecità*)

There are two types of sightless pensions, according to the degree of sightless of the individual: **absolute** or **partial sightless**. The sightless is defined partial if the residual sight is at most a twentieth in both eyes. Entitled individuals are Italian resident citizens and foreigners with long-term residence permit, hospitalized and not hospitalized. The pensions are means tested. As an example, the threshold for non-hospitalized absolute sightless was 16.532,10 euro in 2015, in 2016 and in 2017, 16.664,36 euro in 2018 and the benefit amount for the same category of recipients was 302,23 in 2015, in 2016 and in 2017, and 305,56 euro in 2018. The benefit is issued for 13 months each year. (*INPS circular letters 210/2015, 8/2017,186/2017*).

Special Benefit (*Indennita' speciale*)

Individuals affected by partial sightless (residual sight of at most a twentieth in both eyes) are entitled to receive, without income test a monthly benefit of 203,15 euro in 2015, 206,59 euro in 2016 and 208,83 in 2017, 209,51 euro in 2018 issued for 12 months (*INPS circular letters 210/2015, 8/2017, 186/2017*).

Deaf-Dumb Pension (*Pensione ai sordomuti*)

It is a monthly benefit granted to deaf-dumb individuals. When the individual is 65 years and three months old, the pension is turned into a social allowance. Eligible individuals are Italian citizens and foreigners with long-term residence permit, aged between 18 and 65 and three months, with an income not larger than the fixed thresholds (16.532,10 euro in 2015, in 2016 and in 2017, 16.664,36 euro in 2018). The benefit amount is granted for 13 months and it was 279,47 euro in 2015, in 2016 and in 2017, 282,55 euro in 2018 (*INPS circular letters 7/2014, 210/2015, 8/2017, 186/2017*).

Communication Benefit (*Indennità di comunicazione*)

It is a benefit granted without income test to Italian resident citizens and foreigners with long-term residence permit. To be entitled for the benefit, the hypacusia must be at least 75 decibel (60 for individuals younger than 12) in the healthiest ear and it must have been occurred in the

first twelve years of life. The benefit is incompatible with the frequency benefit, but compatible with the accompany benefit. The benefit amount was 252,20 euro in 2015, 254,39 euro in 2016, 255,79 euro in 2017, 256,21 euro in 2018 (*INPS circular letters 210/2015, 8/2017, 186/2017*).

Personal, Long-term Assistance Allowance (*Assegno per assistenza personale continuativa*)

Entitled individuals (i) have been defined by INPS as disabled to working activity, (ii) are incapable to walk alone or (iii) are in need of a permanent help because not able to do everyday activities. The benefit can be requested contextually to the inability pension (see Social Insurance) and it is not granted in case of hospitalization periods provided by the public administrations.

1.3 Social contributions

Social contributions are due by employees, employers and self employed individuals on earned income, and the due amount is different according to: (i) the source of income (employment or self-employment income); (ii) the sector of activity (manufacturing, building, mining, publishing, public administration, handcrafting, agriculture, banking and insurance, services, cooperative sector, broadcasting); (iii) the number of persons working in the firm; (iv) the occupational status (executives, white collars, blue collars). The average contribution rate is about 40%: part is due by the employer, part by the employee.

The National Institute of Social Security (*INPS*) collects contributions for the following insurances:

- Invalidity, Old Age and Survivors (*Invalidità, Vecchiaia, Superstiti*)
- Unemployment (*Disoccupazione*)
- Dependency benefit Fund (*Cassa Unica Assegni Familiari*)
- Redundancy Fund (*Cassa Integrazione Guadagni*)
- Procedure for mobility and Collective Dismissals (*Mobilità*)
- Sickness and Maternity Benefit (*Malattia e Maternità*)
- Severance Pay (*TFR*)

See Section 2.4 for details.

1.4 Taxes

1.4.1 Personal Income Tax (*IRPEF Imposta sui redditi delle persone fisiche – tinna_s*)

IRPEF has been introduced in 1974, substituting a large number of previous real taxes on income. It is an *individual* and *progressive* tax on total income. Family dimension and composition is also taken into account by the system of deductions and tax credits. The tax is due by resident individuals (wherever the income is produced) and non-resident individuals (for incomes produced in Italy). The definition of taxable income is broad, but the actual tax base is smaller because several income sources are subject to separate taxation. The tax base is made of income from land and buildings, from employment and self-employment, business income and capital income in a marginal way (only a quote of dividends and capital gains from dividends and capital gains from a given type of holding - *Partecipazione Qualificata*⁴ - are included in the personal income tax base).

See Section 2.5 for details.

⁴ For listed securities, the 2% of the vote rights or the 5% of the company capital; for non-listed securities, the 20% of vote rights or the 25% of the company capital.

1.4.2 Personal Income Regional Additional Tax (*IRPEF Addizionale regionale – tinrg_s*)

The Regional Additional Tax is basically due on the same tax base of the Personal Income Tax. The tax rate is made of two components: a mandatory rate and an additional discretionary rate defined by each region within certain limits. See Section 2.6.1 for details

1.4.3 Separate Taxation on Capital Income (*Imposte sostitutive sui redditi da capitale – tinktcp_s, tinktdt_s, tinktdv_s, tinktbd_s, tinktgb_s*)

Even if capital income is theoretically included in the personal income tax base, it is mainly subject to separate taxation. Up to 2010, there were two different tax rates: 27% and 12.5%: long-term investments were encouraged by applying the lower rate. In the period 2012-2013 there are two different tax rates: 20% and 12.5%. From 2014 the standard rate increased from 20% to 26%. With respect to capital gains, some differences arise according to the type of savings regime chosen by the investor. If the portfolio is managed by a financial intermediary, capital gains are taxed at the accrual and it is possible to compensate capital losses with capital income. Otherwise, if the investor self-manages her savings, capital gains are taxed at realization and capital losses may be compensated only with capital gains.

A different regime applies to returns on social security investments which are favoured by applying a rate of 11%, and to arrears, severance pay and private pensions paid out in form of capital. See Section 2.6.2 for details

1.4.4 Corporate Tax (*IRES - Imposta sui redditi delle società*)

The corporate tax is a proportional tax levied on net profits. The basis is roughly computed by adding revenues (sales of goods, services, corporate shares, bonds), capital gains (at realizing), perceived dividends and interests (at nominal value), stocks and subtracting the cost of labor, of goods and services, capital losses, paid interests, depreciation and current losses. The tax rate has been 33% until 2007. Starting with the business year after 2007, the rate is 27.5%. Starting with the 2017 business year, the tax rate has been decreased to 24%. Starting from 2008, it is possible to deduct from the IRES basis the 10% of the regional tax on business (IRAP).

1.4.5 Value Added Tax (*IVA - Imposta sul valore Aggiunto*)

The base of the Value Added Tax is the total business value added minus investment expenses, and therefore coincides with the value of final consumption. The due tax is computed by the method *tax-to-tax*. From 2012 the normal tax rate is 21% (before it was 20%), increased to 22% from 1st October 2013, but there are also two lower tax rates 4% and 10%. The lowest is applied to primary goods such as milk, butter, cereals, pasta and bread, books and newspapers. Exemptions apply on financial transactions, public services and health, education and welfare, and a favourable regime is granted to agriculture.

1.4.6 Regional Tax on Business (*IRAP - Imposta sui Redditi delle Attività Produttive*)

IRAP provides about a half of the financing for Regions (mainly devoted to the health system). The tax is imposed on all those engaged in commercial business and on public administrations. It is charged on the net value added resulting from the business pursued in the region defined as the sum of labor costs, interests paid and profits, net from depreciation.

1.4.7 Municipality Property Tax (*ICI - Imposta Comunale sugli Immobili, IMU – Imposta Municipale Propria and TASI – Tassa sui Servizi Indivisibili*)

The municipality property tax (*ICI - Imposta comunale sugli immobili*) is due by: (i) owners of buildings, building areas, arable lands located in Italy; (ii) individuals enjoying some real rights

on that buildings areas or lands (holders of usufruct, right of user, right of occupancy, emphyteusis, building lease); (iii) lessees; (iv) licensees of State demesne.

For buildings registered at the cadastre, the tax base is the cadastral value raised by 5% multiplied by a coefficient which is different according to the building type (from 140 to 34). For the building areas, the tax base is the current selling value. For arable lands, the tax base is the estate income, raised by 25% and multiplied by 75.

Starting from 2008 *ICI* is no more due for the main residence, with the exception of luxury flats, villas, castles and palaces of historic or artistic importance. See the final section on health warnings for details.

Each municipality fixes its own tax rates, which can be found on the web site of the Ministry of Finance: <http://www.finanze.it/dipartimentopolitichefiscali/ici/delibere>

Starting from fiscal year 2012, the Property Tax has been redesigned. The new tax is the IMU – *Imposta Municipale Propria*. The new tax is due by the same subjects as *ICI*.

The tax base for buildings registered at the cadastre is the cadastral value raised by 5% multiplied by a coefficient that is different according to the building type (from 160 to 55).

Tax rates are different according to the type of building and municipalities can modify them. The baseline rates are: 0.4% for the main residence; 0.2% for rural buildings; 0.76% for rented buildings and other cases. In the case of main residences there is a tax credit of 200 euro plus 50 euros for each dependent children aged 26 or less living in the household.

In 2013 the Property Tax on the main residence has been suspended.

In 2014 it has been introduced the TASI (*Tassa sui Servizi Indivisibili*) on both main residence (average tax rate at national level: 0.17%, without considering tax credits) and other residences (the sum of TASI and IMU cannot exceed the 1.06%). In 2015 the rules are the same as in 2014. Since 2016 the TASI on main residence has been abolished (with the exception of luxury houses). The European Commission has been advocating for reintroducing the first residence tax for high-income households in its 2016 and 2017 recommendations

1.4.8 Other indirect taxes

There is a wide amount of other indirect taxes, traditionally classified in three categories: (i) business taxes; (ii) taxes on production and (iii) monopoly and State lottery.

- The **Registration Duty** (*Imposta di Registro*) is levied upon the legal registration of acts of different nature (concerning a legal transaction or an administrative or legal operation). The main source of revenues is connected to real estate transaction and corporate operations.
- The **Mortgage Duty** (*Imposta Ipotecaria*) is linked to mortgage institutions, modifications or redemptions, and transcriptions concerning real estate's immovable.
- The **Stamp Duty** (*Imposta di Bollo*) is levied upon acts (civil, commercial, legal, extrajudicial), notices, posters, advertisements.
- **Excise duties on energy** which particularly hits oil products (petrol and diesel oil), but which is levied also on beer and spirits.
- **Monopoly and State lottery** provides a non-negligible source of revenue.

2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

2.1 Scope of simulation

In the following Table 2, we provide the list of benefits and taxes which are included in EUROMOD.

Table 2. Simulation of benefits and taxes in EUROMOD

	Variable name	2015	2016	2017	2018
Family Allowance for families with at least three children	bchot	I	I	I	I
Scholarship	bed	I	I	I	I
Family Allowances	bfalp_s				
	bfacpxc_s	S	S	S	S
	bfacpwc_s				
Mother bonus	bfacc_s	-	-	S	S
New born bonus	bfaba_s	S	S	S	S
Minimum Income (<i>Reddito di inclusione</i>)	bsamm_s	-	-	-	S
Housing Benefits	bho	I	I	I	I
State and Municipalities Dependency Benefits	bmals	I	I	I	I
Maternity leave for self-employed	bmase	I	I	I	I
Minimum Insertion Income, Basic Needs Debit Card	bsa00, bsa01	I	I	I	I
Redundancy Payment	bunct01	I	I	I	I
Unemployment Benefits, Procedure for Mobility	bunct02	I	I	I	I
Unemployment Benefits, training	bunst	I	I	I	I
Benefits related to the reduction in working ability	phl	I	I	I	I
Inability Pensions, Infirmary Allowances and War Pension	pdi	I	I	I	I
Old Age Pension	poa	I	I	I	I
Pension extra payment (<i>Quattordicesima</i>)	poaxp_s	-	-	S	S
Social Allowance to individuals older than 65	poamt_s	S	S	S	S
Survivors Pension	psu	I	I	I	I
Personal Income Tax	tinna_s	S	S	S	S
Additional solidarity contribution	tinto_s	S	S	-	-
Bonus “80 euro”	tintceent_s	S	S	S	S
Personal Income Regional Additional Tax	tinrg_s	S	S	S	S
Personal Income Tax on rental income	tinrt_s	S	S	S	S
Separate Taxation on Capital Income	tinktcp_s tinktdt_s tinktdv_s tinktbd_s tinktgb_s		S	S	S
Separate Taxation on arrears and severance pay	tinsv_s	S	S	S	S
Property Tax – Main residence	tprmb_s	S	S	-	-
Property Tax – Other buildings	tprob_s	S	S	S	S
Employee Social Insurance Contributions	tsceepi_s tsceesf_s	S	S	S	S
Employer Social Insurance Contributions	tscerpi_s tscerui_s tscersv_s tscerfa_s tscersf_s tscersi_s		S	S	S
Self-employed Social Insurance Contributions	tscepi_s tscseml_s	S	S	S	S

Notes: “-”: policy did not exist in that year; “E”: *excluded* from the model as it is neither included in the micro-data nor simulated; “I”: *included* in the micro-data but not simulated; “PS” *partially simulated* as some of its relevant rules are not simulated; “S” *simulated* although some minor or very specific rules can be disregarded.

2.2 Simulated policies and order of simulation

2.2.1 Simulated Policies

Table 3. Simulated policies

Section	Policy	Description	2015	2016	2017	2018
2.3.1	bfalp_it, bfacpxc_it, bfacpwc_it	Family allowances	X	X	X	X
2.3.2	bunct01_it	Wage supplementation scheme	X	X	X	X
2.3.3	bunct02_it	Ordinary Unemployment benefit	X	X	X	X
2.3.4	poamt_s	Social Allowance to individuals older than 65	X	X	X	X
2.3.5	poaxp_s	Pension Extra payment	-	-	X	X
2.3.6	bfacc_s	Mother bonus	-	-	X	X
2.3.7	bfaba_s	New born bonus	X	X	X	X
2.3.8	bsamm_s	Minimum Income	-	-	-	X
2.4.1	sicer_it	Employer SICs	X	X	X	X
2.4.2	sicee_it	Employee SICs	X	X	X	X
2.4.3	sicse_it	Self-employed SICs	X	X	X	X
2.5	tintsna_it, tintc_it, tinna_it tinto_s	Personal Income Tax Additional solidarity contribution	X	X	X	-
2.6.1	tinrg_it	Additional Regional Personal Income Tax	X	X	X	X
2.6.2	tinkt_it	Separate Taxation on Capital Income, arrears and severance pay	X	X	X	X
2.6.3	tprmb_s, tprob_s	Property tax	X	X	-	-
2.6.4	tinrt_s	Personal income tax on rental income	X	X	X	X
2.6.5	tintceent_s	Bonus “80 euro”	X	X	X	X

2.2.2 Order of simulation

Besides the policy sheets containing the default values (*SetDefault_it*), uprating factors (*Uprate_it* and *uprate_bands_it* for the uprating of public pensions by bands), constants (*ConstDef_it*), the definition of income lists (*ILsDef_it*, *ILsUDBDef_it*, *ILdef_it*) and tax units (*TUDef_it*), the first options in the spine allows the user to decide whether uprating public pensions by average growth (*UAA_it*) and implementing or not the correction for tax evasion

(*TCA_it*, see more detail in Section 3.3.2). By default, the latter correction is switched on. The default policy to simulate the minimum wage is switched off as no minimum wage exists in Italy (*yem_it*) while all negative values recorded in the self-employment income are set to 0 (*neg_it*).

The simulation of social insurance contributions is divided in three policies: *sicee_it*, *sicer_it* and *sicse_it* and precedes the simulation of the personal income tax because social insurance contributions (paid by employees and self-employed) are deductible.

The following two policies refer to housing: tax on rental income (*tinrt_it*) and property tax (*tpr_it*).

The simulations of both the wage supplementation scheme (*bunct01_it*) and the ordinary unemployment benefit (*bunct02_it*) are switched off by default in the baseline and used for the calculation of net replacement rates or as part of specific add-ons. Both benefits are taxable and then simulated before the income tax.

Since 2017 the pension extra payment (*Quattordicesima*) is augmented based on working history and income levels (*poaxp_it*).

The out of pocket childcare fees have been implemented just as an example in the policy *xcc_it* but need to be updated and revised by the interested user.

Up to 2016, the additional solidarity contribution (*tinto_it*) is simulated, together with the cuts of public pensions and public salaries, before the income tax because is deductible.

The personal income tax is simulated in three different policy sheets: *tintsna_it* (including the main tax deductions and the tax schedule), *tintc_s* (personal tax credits) and *tinna_s* (family tax credits and final calculation of the tax). The policy *tintciw_it* simulates the “80 euro” bonus, which is considered part of the national income tax (as a consequence, the income tax can be negative) Additional regional personal income tax (*tinrg_it*) and separate taxation on capital incomes (*tinkt_it*) follow.

The second part of the spine (before the “output” policy sheets) includes the simulation of the non contributory benefits: Social Allowance to individuals older than 65 (*poamt_it*), Mother bonus (*bface_it*), and the Family Allowances (*bfacepxc_it*, *bfacep_it* and *bfacepwc_it*).

The policy *isee_it* allows to simulate the Indicator of Equivalised Economic Situation (ISEE) which is used for most of means-tested benefits such as the new born bonus (*bfaba_it*) and the minimum income scheme (*bsamm_s*).

Table 4. EUROMOD Spine: order of simulation, 2015-2018

Policy	Description	Main output
SetDefault_it	Default values	
UAA_it	Switch for uprating pensions by average growth	
Uprate_it	Uprating factors	
uprate_bands_it	Uprating factors for public pensions by bands	
ConstDef_it	Constants and other system definitions	
ILsDef_it	Standard Income concepts	
ILsUDBDef_it	Income concepts based on SILC UDB classification	
ILDef_it	National specific Income concepts	
TUDef_it	Assessment units	
TCA_it	Tax evasion correction	
yem_it	Minimum wage	
neg_it	Correction of negative values	
sicee_it	Employee SICs	tsceepi_s, tsceesf_s
sicer_it	Employer SICs	tscerpi_s, tscerui_s, tscersv_s, tscerfa_s, tscersf_s, tscersi_s
sicse_it	Self-employed SICs	tscsepi_s, tscseml_s
tinrt_it	Tax on rental income	tinrt_s
tpr_it	Property tax	tprmb_s, tprob_s
bunct01_it	Wage supplementation scheme	bunct01_s
bunct02_it	Ordinary Unemployment benefit	bunct02_s
poaxp_it	Pension extra payment	poaxp_s
xcc_it	Out of pocket childcare fees	xcc01_s
tinto_it	Additional solidarity contribution and cuts to public pensions and public salaries	tinto_s poa yem
tintsna_it	Personal Income Tax: Deductions and tax schedule	tintsna_s
tintc_it	Personal Income Tax: personal tax credits	tinna_s
tinna_it	Personal Income Tax: family tax credits and final tax	tinna_s
tintciw_it	Bonus "80 euro"	tintcent_s
tinrg_it	Additional Regional Personal Income Tax	tinrg_s
tinkt_it	Separate Taxation on Capital Income, arrears, private pensions and severance pay	tinktcp_s, tinktdt_s, tinktdv_s, tinktbd_s, tinktgb_s, tinsv_s
poamt_it	Social Allowance to individuals older than 65	poamt_s
bfacc_s	Mother bonus	bfacc_s
bfacpxc_it	Family allowance: couple and 0 child	bfacpxc_s
bfalp_it	Family allowance: one parent and children	bfalp_s
bfacpwc_it	Family allowance: two parents and children	bfacpwc_s
isee_it	Indicator of Equivalised Economic Situation	ymn03_s
bfaba_it	Bew born bonus	bfaba_s

bsamm_it	Minimum Income	bsamm_s
output_std_it	Standard output – individual level	
output_std_hh_it	Standard output – household level	

2.2.3 Structural changes between 2015 and 2016

Property Tax. *TASI* abolished on main residences (with the exception of luxury houses).

2.2.4 Structural changes between 2016 and 2017

The solidarity contribution (i.e. and additional tax rate of 3% on taxable incomes above 300.000 euros) and the reduction of pensions above 91251.16 euro per year have not been renewed in 2017.

Personal Income Tax

- The base for computing the 19% tax allowance on pre-primary education is increased from 400 euro for child to 564 euro in 2016 and 717 euro in 2017.
- The maximum tax allowance on pension income is increased to 1,880 euro for all pensioners regardless of age, and the total income tax to be eligible to the maximum tax allowance is increased to 8,000 euro.
- Dominical and agrarian incomes of farmers and self-employed in the agricultural sector are excluded from the PIT tax base, provided individuals are enrolled in a social security (*not simulated*)

Tax Collection

Starting July 1st 2017, a new public institute responsible for tax collection (the Entry-Collection Agency, *Agenzia delle Entrate-Riscossione*) is instituted as replacement for the society Equitalia.

Social Protection

The fourteenth yearly pension payment (*quattordicesima*) paid to low-income pensioners aged 64 and above is increased by 30 percent. Also, the maximum income amount for eligibility is increased to 2 times the minimum pension (from 1.5 times). The changes are simulated in the variable *poaxp_s* treated as *poa* in the system

Sostegno per l'inclusione attiva: a measure to fight extreme poverty has been introduced but during the year the number of applications accepted have been relative low (*not simulated due to discretionality of policy rules and lack of data*)

A new mother bonus has been introduced an simulated (*bfacc_s*)

2.2.5 Structural changes between 2017 and 2018

The new born bonus , for those born in 2018 the bonus is recognised only up to the first year of age.

Since January 2018 the *Sostegno per l'inclusione attiva* has been replaced by REI (*Reddito di inclusione*) with much potential beneficiaries and a larger allocated budget, simulated (*bfamm_s*).

2.3 Social benefits

2.3.1 Family Allowances (*bfacpxc_s*, *bfalp_s*, *bfacpwc_s*)

The **Family Allowances** (*Assegno per il nucleo Familiare*) are targeted to families of employees and pensioners with family incomes below determined thresholds. The thresholds and the amounts of the benefit are different according to the household composition and number of members, and are fixed every year by Law.

- **Definition**

The unit of analysis is the family (*tu_fa_family_it*) including⁵:

- The referent person who asks for the benefit;
- The spouse;
- Children and grandchildren of direct ascendant if aged under 18.

- **Eligibility conditions**

Eligible individuals are: employees, retired employees, unemployed individuals receiving the unemployment benefit, individuals under severance pay, individuals under procedure for mobility and collective dismissal, employees on sick or maternity leave (recipients of income source included in the income list *il_fa_dep*).

An individual is entitled to receive the benefit if the sum of the above income sources, net of social contributions, amounts to at least 70% of the whole family members' income (*il_fa_totinc*). Sources of income not subject to income tax or subject to withholding tax (*il_fa_disregy*) are included only for the amount larger than 1,032.91 euro per year (disregarded amount: *ydg01_s*).

The income relevant for the benefit is the income produced in the solar year before the 1st of July of each year, and it remains valid until the 30th of June of the following year. Therefore, for example, for the period between the 1st of July 2018 and the 30th of June 2019, income produced in 2017 is taken into account. For the simulation of the benefit, we assume the family income to stay constant in two consecutive years and we use the income thresholds as of 1st July (instead of 30th June).

- **Income test**

The access to the benefit is restricted to those families below an income threshold. The threshold is different according to the composition of the family (presence of either spouses or just one, presence of children aged under 18) and increasing in the number of family members.

⁵ Other entitled individuals (not included in the simulation due to lack of information in the data) include i) children aged above 18 unable to work; ii) siblings and nephews aged under 18 or aged above 18 unable to work, if they are orphans of both parents and do not receive any survivor pension, iii) one single person receiving a survivor pension (orphan or spouse), if she is aged under 18 or aged above 18 unable to work.

Income thresholds are adjusted each year and index-linked to the annual average growth rate of the consumer price index for working-class households, elaborated by the National Statistical Office (*ISTAT*).

In 2017 income thresholds and benefit amount do not change with respect to the previous year because the change in the consumer price in 2015 and 2016 was -0,1% and consequently the reference amounts do not change (INPS circ. 51/2016, 70/2017, 68/2018). In 2018 the income limits are subject to an increase of 1.1%.

Table 5. Annual Average Growth Rate of consumer price index (% with respect to previous year)

Year	Δ%
2015	+0.3
2016	+0
2017	+0
2018	+1.1

Source: ISTAT, FOI, Indice Nazionale dei prezzi al consumo per le famiglie di operai ed impiegati.

- **Benefit amount**

The employer has to pay the benefit to entitled employees who ask for it. The benefits to be paid to children of divorced parents, to natural children, to siblings, to nephews, to invalid family members and to family members living abroad have to be approved by the National Institute of Social Security - INPS.

The benefit is paid off together with the wage for employees. Then, the employer asks INPS to be refunded. Unemployed individuals and pensioners receive the benefit from INPS.

The income thresholds and the benefit amount (valid from 1st July to 30th June) depend on family composition (INPS circ. 92/2016, 87/2017, 68/2018). We simulate Family Allowances for three types of family:

- family with no children – (*bfacpxc_s*)
- family with one parent and at least one child aged <18 – (*bfalp_s*)
- family with two parents and at least one child aged <18 – 2005 (*bfacpwc_s*)

The benefit amount decreases with income in a non linear way. From 2009 on, for families with more than 7 members the monthly benefit amount follows precise rules as for smaller families. However, in the simulation it is increased by 15% plus a lump sum of 55 euro per month (following the rules pre-2009, given that in the underlying data only few families (i.e. 1 family in 2012 data) are larger than 7 members and entitled to the benefit. See EUROMOD policy sheets for the specific benefit amounts.

For details on income thresholds and benefit amounts see EUROMOD model.

- **EUROMOD notes**

Since in the dataset we do not have any detailed information on the disability status (as defined by the Law) of the individuals, in the simulation we assume that there are no disabled persons.

The discipline of the benefit applies also to part-time workers, with some differences. If the worker has worked at least 24 hours a week, the allowance is due without reductions for each

weekday, including Saturday (even if it is not a working day). If the worker has worked less than 24 hours a week, the allowance is due only for the working days. Due to lack of data on the hours worked, the reduction for part time workers is not considered in the simulation.

As mentioned above, for the simulation of the benefit, the family income is assumed to stay constant in two consecutive years (e.g. by law the income thresholds valid at 1st July of 2018 are applied to the income earned in 2017. In the simulation we observe income earned in 2015, assuming that family composition and family income do not change between 2015 and 2017 and we use the income thresholds as of 1st July (instead of 30th June).

2.3.2 Wage supplementation scheme (*Cassa Integrazione Guadagni – bunct01_s*)

- **Definitions**

The Wage supplementation scheme (*Cassa integrazione guadagni*) is a means for softening the impact of economic cycles on the labour market, allowing firms to keep their full workforce, who can work shorter hours while waiting for better economic conditions.

- **Eligibility Conditions**

The main eligibility conditions are set at firm level and all employees of a firm brought on the scheme can be eligible for it.

- **Income Test**

There is not an income test, but the law fixes a maximum monthly amount which depends on the wage. These thresholds are summarized in the following tables.

Table 6. Wage Supplementation scheme - Maximum Amount – 2015-2018

Year	Wage Threshold	Benefit Maximum Amount	
		Below the threshold	Above the threshold
2015	2102.24	914.96	1,099.70
2016	2102.24	914.96	1,099.70
2017	2102.24	914.96	1,099.70
2018	2125.36	982.40	1,111.80

Source: INPS Circular Letter 19/2015, 48/2016, 36/2017, 19/2018

- **EUROMOD notes**

The simulation is only implemented to be used to calculate Net Replacement Rates or to be used in specific adds-on. It is switched off in the baseline, with values taken directly from the data.

2.3.3 Ordinary Unemployment benefit (*Indennita' di disoccupazione ordinaria / ASPI – bunct02_s*)

- **Definitions**

The ordinary unemployment benefit is granted to insured employees who have been dismissed. From 2013 the ordinary unemployment benefit has been replaced by ASPI and mini-ASPI, and by NASPI from 2016. The mini-ASPI is not simulated due to the lack of information available in the datasets. The benefit for temporary workers (e.g. co.co.co and others) called DISC/COLL is not simulated.

- **Eligibility Conditions**

The benefit is not granted to resigned employees, unless the resignation is due to *good cause* as, for example, missed wage payment, sexual harassment, mobbing. The benefit is also given to employees who have been suspended for transitory reasons and causes not due to employers or employees behaviour. The benefit is no more due when the employee (i) has received the benefit for all the allowed days; (ii) starts a new employment; (iii) retires; (iv) refuses an employment proposal with a wage non less than the 20% of the previous one; (v) refuses to be enrolled in social activities; (vi) is erased from the employment lists.

Eligible individuals are employees who have paid (i) contribution against unemployment for at least two years or (ii) 52 weeks of contribution in the two-year period before the date of work suspension. Individuals in order to be eligible for NASPI must have paid social contributions for at least 13 weeks in the previous 4 years.

- **Income Test**

There is not an income test, but the law fixes a maximum monthly amount which depends on the wage. These thresholds are summarized in the following table.

Table 7. ASPI\NASPI Maximum Amount – 2015-2018

Year	Wage Threshold	Benefit Maximum Amount
2015	1,195.37	1,167.91
2016	1,195	1,300
2017	1,195	1,300
2018	1,208.15	1,314.30

Source: INPS Circular Letter 12/2014, 19/2015, 48/2016, 36/2017, 19/2018

- **Benefit Amount**

The benefit amount and the duration of the treatment are different according to scheme in place and the age of the employee as detailed in the following tables. The benefit is taxable.

Table 8. ASPI\NASPI Amount – 2015-2018

Age	Duration	Benefit Amount (% of average gross wage of last two years)
Aged <50	8 months (10 months from 2015)	75% for months 1 to 6 if gross wage <= the wage threshold
Aged >= 50	12 months	75% + 25% (wage – wage threshold) for months 1 to 6 if gross wage > the wage threshold After the first 6 months, the benefit is reduced by 15%

The duration is longer than 12 months for those aged >=55 and the benefit is reduced by 15% after the first 12 months, but in EUROMOD the simulation is based on the first 12 months of receipt. The duration of NASPI is up to half weeks of paid contributions (not simulated in EUROMOD)

- **EUROMOD notes**

By default the simulation of unemployment benefit is switched off in the spine. The implemented simulation takes into account the previous earnings and the number of months spent in work which need to be specified in the respective variables by the user. Eligibility takes into account the number of years in employed (rather than weeks of paid contributions in the previous years).

The simulation is only implemented to be used to calculate Net Replacement Rates or to be used in specific adds-on. .

2.3.4 Social Pension and Social Allowance to individuals older than 65 (*Assegno sociale per ultrasessantacinquenni – poamt_s*)

- **Definitions**

These are a purely social assistance benefits dedicated to old indigent Italian citizens, or other EU citizens living in Italy.

- **Eligibility Conditions**

Eligible individuals are at least 65 years and three months old (65 years and 7 months old starting in 2016). They must be Italian citizens living in Italy or (starting from the 11th April 2007) other EU citizens who have been living in Italy for at least three months or (starting from the 1st of January 2009) other EU citizens who have been living in Italy consecutively and legally for at least ten years.

• **Income Test**

The sum of all incomes of the individual (non married) or the cumulated incomes of the two spouses, except:

- one third of the pension computed with the pay-as-you-go contributive system,
- the arrears subject to separate taxation,
- the redundancy benefit,
- any kind of family allowance,
- the cadastral value of the main residence,
- the social allowance,
- the accompanying allowance,
- the allowances related to some sort of disability
- the war pension

cannot exceed some maximum amounts, summarized in the following tables

• **Benefit Amount**

Eligible individuals receive the total benefit amount only if their income is zero. Otherwise, they receive the difference between the benefit amount and their income. No benefit is due if the income exceeds the fixed thresholds. The amount due is subject to a means-tested monthly increase (*maggiorazione*). On top of the means-tested monthly increase, another increase (*aumento dell'assegno sociale*) of 167.96 euro per year is granted when specific income conditions apply.

Income test and Benefit amount for Social Allowance for elderly

Year	Non married			Married	
2015	Zero	448.07	Zero	448.07	
	> 5,824.91	Zero	> 11,649.82	Zero	
	< 5,824.91	(5,824.91 – RP)/13	< 11,649.82	(11, 649.82– RC)/13	
2016	Zero	448.07	Zero	448.07	
	> 5,824.91	Zero	> 11,649.82	Zero	
	< 5,824.91	(5,824.91 – RP)/13	< 11,649.82	(11, 649.82– RC)/13	
2017	Zero	448.07	Zero	448.07	
	> 5,824.91	Zero	> 11,649.82	Zero	
	< 5,824.91	(5,824.91 – RP)/13	< 11,649.82	(11, 649.82– RC)/13	
2018	Zero	453	Zero	453	
	> 5,889	Zero	> 11,778	Zero	
	< 5,889	(5,889 – RP)/13	< 11,778	(11,778– RC)/13	

Source: *INPS Rinnovo “year” - Tabelle*

Annual increased amount for Social Allowance for elderly (Maggiorazione)

	2015	2016	2017	2018
>=65	190.26	190.26	190.26	190.86

Source: *INPS Rinnovo “year” - Tabelle*

2.3.5 Pension extra payment (*Quattordicesima – poaxp_s*)

The fourteenth yearly pension payment (*Quattordicesima*) paid to low-income pensioners aged 64 and above is increased by 30 percent. Also, the maximum income amount for eligibility is increased to 2 times the minimum pension (from 1.5 times). The changes are simulated in the variable *poaxp_s* treated as *poa* in the system

2.3.6 New born bonus (*Bonus bebè – bfaba_s*)

The bonus corresponds to 80 Euro per months for a maximum of three years are given to families per each child born after January 2015. For those born in 2018 the bonus is recognised up to the first year of age. It is subject to a means-test verified by using the ISEE (Indicator of Equivalised Economic Situation) which cannot be higher than 25.000 euro per year. If the ISEE is below 7.000 euro per year the amount of the bonus is 160 euro per month.

2.3.7 Mother bonus (*Bonus mamma, premio alla nascita – bfacc_s*)

Effective January 1st 2017, an allowance of 800 euro, excluded by the PIT tax base, is recognised for the birth of each child or adoption of minors (*bfacc_s*).

2.3.8 Minimum Income (*Reddito di Inclusione REI – bsamm_s*)

In 2018 the *Reddito di Inclusione (REI)* has been introduced as the new policy instrument to support family income. In 2018 REI (without family conditions) is given only for 6 months (from July, 1st). Eligibility depends mainly on ISEE and its components: ISEE must be below 6000€ per year and the income component of ISEE must be lower than 3000 € per year (reduced to 2250€ in 2018). Household must not have real assets (with exclusion of the main residence) and financial assets have to be lower than 10000€. The benefit amount is given by the difference between a pre-defined threshold and household income.

Reddito di Inclusione (REI) is simulated in the variable *bsamm_s*. For details see Baldini et al. 2018, The impact of REI on Italian households' income: a micro and macro evaluation, *Politica Economica / Journal of Economic Policy*.

Since 2019 *Reddito di Inclusione (REI)* is going to be replaced by *Reddito di Cittadinanza (RdC)*.

2.4 Social contributions

The incidence of social contributions on earned income is different according to: (i) the source of income (dependent, self-employment); (ii) the sector of activity (manufacturing, building, mining, publishing, public administration, handcrafting, agriculture, banking and insurance, services, cooperative sector, broadcasting); (iii) the number of persons working in the organization; (iv) the occupational status (executives, white collars, blue collars).

Due to lack of data, we simulate a simplified version of the social contribution system, by applying to all dependent workers the rates of the Industrial Sector with more than 50 employees, discriminating between blue and white collars. As for the self-employed workers we differentiate only between craftsmen, tradesmen, and farmers.

Table 9. List of different sectors to determine the contributory rates

General Industry	Radio and Television Industries and Show business
<=15 employees	Industrial Sector
between 15 and 90 employees	Radio and television private industries
More than 90 employees	Not employed artists
Building Industry	Bingo Arcades
<=15 employees	Developing, Print and Distribution <15
Between 15 and 50 employees	Developing, Print and Distribution >15 & <50
More than 50 employees	Developing, Print and Distribution >50
Stone Industry	Trading Sector
<=15 employees	Commerce - Tertiary
between 15 and 50	Commerce <=50
More than 50	Commerce > 50, <200
Handicraft	Commerce >200
Craftsman	Temporary job placement Agencies
Induced craftsman	Travel Agencies <=50
Building craftsman	Travel Agencies >50
Induced building craftsman	Cleaning Agencies <=15
Stone craftsman	Cleaning Agencies >15
Induced Stone craftsman	Security Services <=15
Agriculture	Security Services >15
Farming	Logistic Services <=50
Farms owned by a tenant farmer	Logistic Services >50 & <200
Cooperative	Logistic Services >200
State Administration	Firm Refectories <15
State Administration	Firm Refectories >15
Secular chaplain	Special Funds
Regular chaplain	Road haulage contractors craftsmen
Prison Inmate	Road haulage contractors industry
Work yards and reforestation	Road haulage regional or governative
State Schools	Contractors
Arts and Professions	Flight Fund
Political Parties and Unions	Banks and Insurance
Bingo Arcades	Regions, Provinces, Municipalities
Fast Mail Carriers	Cooperatives
Tertiary	Personnel abroad
	Apprentices

The average contribution rate is about 40%: part is due by the employer, part by the employee. The National Institute of Social Security (*INPS*) collects contributions for the following insurances:

- Invalidity, Old Age and Survivors (*Invalidità, Vecchiaia, Superstiti*), which is the contribution valid for the pension
- Unemployment (*Disoccupazione*);
- Dependency benefit Fund (*Cassa Unica Assegni Familiari*);
- Redundancy Fund (*Cassa Integrazione Guadagni Straordinaria*);
- Procedure for mobility and Collective Dismissals (*Mobilità*);
- Sickness and Maternity Benefit (*Malattia e Maternità*);
- Severance Pay (TFR).

Contribution is proportional to the gross wage defined as compensation in money and in kind. The following are excluded: the amounts received as Severance Pay, as encouragement to leave, as indemnity, as insurance premium, family benefits, the amounts received as scholarships, childcare and summer camps for family members, fringe benefits within € 258.23, travelling expenses within given thresholds.

The tax base for social contributions (*limite di retribuzione per l'accredito dei contributi*) cannot be lower than a given threshold fixed by the Law. On the other hand, there is also a threshold above which contribution is no more due (*massimale annuo della base contributiva*) and it applies to workers who started their working activity after the 1st of January 1996.

Table 10. Monthly Minimum and Maximum tax base for social contribution: Employees

	2015	2016	2017	2018
Min	870	870	870	879.5
Max	8360.33	8360.33	8360.33	8452.25

Source: INPS: circular letters n. 20/2014, 11/2015, 11/2016, 19/2017

As we showed in Table 9, the Italian contributory system is very fragmented and we do not simulate the rates for all the possible combinations, considering that they differ very little and we do not have enough information in the data. In the following two paragraphs we report the rates of the Industrial Sector with more than 50 employees, discriminating between blue and white collars. which are simulated in EUROMOD.

2.4.1 Employer social insurance contributions (*tscerpi_s, tscerui_s, tscersv_s, tscerfa_s, tscersf_s, tscersi_s, tscertj_s*)

The following table reports the employer social contributions for blue collars (b.c.) and white collars (w.c.) in the four considered years, related to industrial firms with more than 50 employees.

Over recent years, a substantial reduction of the tax wedge on new contracts has been implemented in different stages by a temporary reduction in social security contributions targeted at elderly workers and women⁶ and a more generous wage subsidy, corresponding to one-third of the gross salary, granted to firms hiring young workers for a period of 18 months.⁷ Moreover, since the beginning of 2015, firms are exempted from paying social security contributions on new permanent contracts for three years.⁸ Due to data limitation, these reductions (which last for a limited period of time) are not simulated in EUROMOD.

⁶Fornero Law, N. 92/2012.

⁷Giovannini-Letta Law, N. 99/2013.

⁸Stability Law, N. 190/2014.

Table 11. Employer social contribution rates (%), industrial firms with more than 50 employees

	2015-18	
	b.c.	w.c.
IVS	23.81	23.81
Unemployment	1.91	1.91
T.F.R.	0.2	0.2
Family allowances	0.68	0.68
Redundancy Fund	2.80	2.80
Sickness and Maternity	2.68	0.46

Source: INPS (<http://www.inps.it/docallegati/mig/doc/Professionista/aliquote/aliquote.htm>). Annex. Notes: b.c.: blue collars; w.c.: white collars

2.4.2 Employee social insurance contributions (*tscepi_s*, *tsceesf_s*, *tsceetj_s*)

The following table reports the employee social contributions for blue collars (b.c.) and white collars (w.c.) in the four considered years, related to industrial firms with more than 50 employees.

Table 12. Employee social contributions, rates (in %)

	2015-18	
	b.c.	w.c.
IVS	9.19	9.19
Redundancy Fund	0.30	0.30

Source: INPS (<http://www.inps.it/docallegati/mig/doc/Professionista/aliquote/aliquote.htm>). Notes: b.c.: blue collars; w.c.: white collars.

Within the same policy sheet of employer and employee social insurance contributions we simulate the contributions related to temporary job (*co.co.co.*) as well.

Table 13. Temporary job (*co.co.co.*) Social contributions, Maximum tax base and rates (in %)

	maximum	employer	employee
2015	100.324	20.48	10.24
2016	100.324	21.15	10.57
2017	100.324	21.81	10.91
2018 *	101.427	22.48	11.24

Notes : * extra contribution for DIS-COLL not considered. Source:INPS: circular letters n. 18/2014, 27/2015, 13/2016, 21/2017

2.4.3 Self-employed social contributions

In the same way as the subordinate employment social contributions, self-employed social contribution provides a minimum and a maximum level of income, below and above which contribution is no more due. In the following table we summarize the minimum income (*minimale*) and the maximum income (*massimale*) for computing contribution for craftsman and retailers.

Table 14. Monthly Minimum and Maximum wages for social contribution: Craftsmen and Retailers

	2015	2016	2017	2018
Min	1295.67	1295.67	1295.67	1309.17
Max	6406	6406	6406	6476.42

Source: INPS Circular Letters 19/2014, 26/2015, 15/2016, 22/2017

Note: Minimum and Maximum wages are defined in yearly terms: the figure shows the official amounts divided by 12.

In the baseline simulation minimum limits are switched off.

For farmers, instead, the criterion for determining the contributory amount is based on the definition of a *normal income*, which is defined by law each year and differentiated for the age of the worker (younger or older than 21 or older than 65), the location of the land (normal, mountain or depressed areas) and the type of activity.

Note that we simulate the benefit for farmers on the basis of their *actual* (declared) income, since from the data we have it is impossible to recover all the information needed to find the *normal income*.

The following table reports the self-employed social contributions levied on self-employment income (*yse*) for craftsman (*crm*), retailers (*ret*) and farmers (*agr*) in the four considered years:

Table 15. Self-employed social contributions, rates (in %)

	2015			2016			2017			2018		
	crm	ret	agr	crm	ret	agr	crm	ret	agr	crm	ret	agr
IVS (%), >21 years	22.65	22.74	22.8	23.10	23.19	23.2	23.55	23.64	23.6	24	24.09	24
IVS (%), <=21 years	19.65	19.74	21.8	20.10	20.19	22.6	20.55	20.64	23.4	21	21.09	24
Maternity (€per year)	7.44	7.44	7.49	7.44	7.44	7.49	7.44	7.44	7.49	7.44	7.44	7.49

Source: INPS circular letter n. 19/2014, 70/2014, 26/2015, 108/2015, 15/2016, 93/2016, 22/2017, 96/2017, 27/2018, 81/2018

Note: crm: craftsman. ret: retailers. agr: farmers.

For craftsman and retailers, if the contributory base exceeds the threshold reported in the table below, the above contribution rates are increased by one percentage points on the income above the threshold.

	threshold
2015	46,123
2016	46,123
2017	46,123
2018	46,630

Source: INPS: circular letters n. 19/2014, 26/2015, 15/2016, 22/2017

2.5 Personal income tax

The main tax simulated for Italy is the Personal Income Tax (*IRPEF - Imposta sul Reddito delle Persone Fisiche, tinna_s*). All residents are responsible to pay IRPEF on their income (and non resident for income produced in Italy).

2.5.1 Tax unit

Personal Income Tax is individual. However, the dimension and the composition of the family are taken into account by mean of tax allowances and tax credits due to the presence of “fiscal dependent” persons. In order for a family member to be considered *dependent* she has to live within the same residence as the reference individual and her income cannot exceed 2.840,51 euro (*ils_origrepy*). This income is defined as all incomes which are included in the personal income tax base and also incomes received by international organizations, consular and diplomatic representatives, the Holy See and organizations directly controlled by it.

2.5.2 Exemptions

The following income components are not included in the concept of gross income:

- Incomes subject to withholding taxation (mainly income from financial assets (*iyi*), such as capital gains and dividends (*iyidv*));
- Income subject to separate taxation as, for example, salary arrears (*yempv*), pensions paid out in form of capital (*ypp01*), and severance pay (*yunsv*);
- Incomes free of income tax as, for example, school benefits (*bed*), some disability pensions (*pdi*), social allowance for elderly (*poamt*), family allowances (*bfacpxc_s*, *bfalp_s*, *bfacpwc_s*), child benefits (*bchot*), fringe benefits only if below 258.23 euro (*kfb*).

2.5.3 Tax allowances

In 2007 the tax allowances system has been totally renewed, since numerous tax allowances have been replaced by a set of tax credits. The following tax allowances remain the same over the four fiscal years considered (2015-2018).

The main tax allowances are social contribution due by employed (*ils_sicee*) and self-employed (*ils_sicse*) individuals and contribution to private pension plans (*tintapv_s*). With respect to the contribution to private pension plans, tax deduction cannot exceed the 12 % of individual total income (*il_taxableY*) and in any case it cannot be greater than 5,164.54 euro per year. From 2007, the limit of 12% of taxable income is abolished.

Another important tax allowance is the tax deduction for the main residence equal to its cadastral income (*amriv*).

Other tax allowances are related to disabled persons health expenses, grants to religious institutions, expenses for domestic help (*tintaos_s*). Due to lack of information in the data, the amount of these allowances is given by a coefficient (defined by income classes and calibrated on the aggregate information collected from the Ministry of Finance) multiplied by individual income.

2.5.4 Tax base

The tax base is defined as gross income minus the various exemptions outlined above. The gross income is defined as the sum of the following income sources:

- 85% of income from Land and Buildings (*tinbrt_s*): from 2011 a separate taxation on rental income can be applied at a flat rate equal to 21% (simulated in *tinrt_s*) and, as a consequence the income from Land and Buildings is not included anymore in the tax base for the Personal Income Tax neither at national level nor at regional and municipal level. In the baseline simulation the separate income tax is switched off.
- Income from Employment (*yem*) and assimilated incomes as vocational training (*bunst*), redundancy payment (*bunct01*), income from mobility and collective dismissals (*bunct02*), income received by people aged under 15 (*yot*), old age pension (*poa*), survivor pension (*psu*), invalidity pension (*phl*)
- Fringe benefits (*kfb_s*) exceeding 258.23€per year
- Income from Self-Employment (*yse*) and maternity benefits for self employed people (*bmase*)
- Capital component of private supplementary pensions (assumed to be 70% of total, *ypp02*)
- Cadastral income of main residence (*amriv* – then completely deducted) and other residence (*aobiv*): in 2012 with the introduction of the new Property Tax (*IMU*) the cadastral value of all residences is not included anymore in the tax base for the Personal Income Tax. Since 2013 50% of cadastral income should be included in the tax base if the residence is not rented and it is located in the same municipality of the main residence. Due to lack of data this is not simulated.

The income tax base includes components which are not included in the underlying data such as credits and compensation for losses from previous fiscal years.

2.5.5 Tax schedule

Income taxation is graduated, with progressively higher marginal tax rates applying to higher income brackets. There are five income brackets.

Table 16. Income brackets (2015-2018)

Income Brackets (Euro per year)	Tax rate (%)
≤15,000	23
15,000-28,000	27
28,000-55,000	38
55,000-75,000	41
≥75,000	43

Source: Agenzia delle Entrate

Starting from 2011 and until the end of 2016. there is an additional tax rate of 3% on taxable incomes above 300.000 euros (solidarity contribution – *tinto_s contributo di solidarietà*).

2.5.6 Tax credits

Tax credits are classifiable into 4 classes which apply all along the four fiscal years taken into account. Some of them have been introduced in 2007 to replace the previous scheme of tax allowances.

All tax credits are non-refundable: as a consequence the tax liability cannot be negative.

Tax credits for personal expenses

It is possible to subtract from the tax liability the 19% of 36 different cases from health expenses to education expenses, to gifts to art or sport institutions, to travel expenses for commuters, and many others. The most important are the following:

- Interests paid on mortgage loans (*xhcmomi*) for the purchase of the main residence, not exceeding 4,000 euro (*tintcmi_s*);
- Health Expenses (for the amount exceeding 129.11 euro), also for the dependent family members, guide dog and expenses for visual, hearing or deambulation aids for disabled persons;
- Life premium and insurance premium against permanent disability, not exceeding 1,291.14 euro;
- Expenses for high and university education;
- Funeral Expenses;
- Donations to non profit organizations;

All the tax credits but *tintcmi_s* are imputed by applying a coefficient calibrated by income classes to get the total amount of tax credits as reported in the aggregate fiscal data).

Tax credits with incentive purposes

In order to stimulate some consumers' behaviours the following tax credits are allowed:

- For tenants subject to controlled rent contracts (Contratti Convenzionali), 495.80 euro if total income is less than 15,493.71 euro and 247.90 euro if total income is between 15,493.71 and 30,987.41 euro;
- For tenants who are employees and move their main residence closer to their working place, being in a different region and further than 100 Km from the original location, 991.60 euro if total income is less than 15,493.71 euro and 495.80 euro if total income is between 15,493.71 and 30,987.41 euro;
- The 36% (optional at 41% starting from 2006, not simulated) of the expenses for the refurbishment of buildings, not exceeding 48,000 euro (*tintc01_s*);
- The 55% of the expenses for energy conservation's interventions.

Within this list, due to lack of data we simulate only the tax credit for the expenses for the refurbishment of buildings (36%), by applying a calibration coefficient which takes into account the possibility of claiming this tax credit in 5 or 10 years.

Tax credits for income source

The tax credits for income source apply in a different way to different classes of taxpayers: employees (*tintcee_s*), pensioners aged 75 and above, pensioners aged below 75 (*tintcpe_s*) and self-employed workers (*tintcse_s*).

The tax credits define a *no tax area* for the four classes of taxpayers and it is then linearly decreasing in the level of gross income minus the cadastral value of the main residence (*il_taxable_pertc*). At 55,000 euro the tax credit is zero.

If more than one source of income is received, the tax credits apply in proportion to the period the individual received that source of income.

Table 17. Tax credits for income source, amounts per year (2015- 2018)

Employment income and assimilated (<i>il_emp</i>)	
Until 8,000	1,880
8,001-28,000	$978 + (902 * (28,000 - il_taxable_pertc) / 20,000)$
28,001-55,000	$978 * ((55,000 - il_taxable_pertc) / 27,000)$
Pensions (<i>il_pensions</i>)	
Until 8,000	1,880
8,001-15,000	$1,297 + 583 * ((15,000 - il_taxable_pertc) / 7,000)$
15,001-55,000	$1,297 * ((55,000 - il_taxable_pertc) / 40,000)$
Self-employment income (<i>yse</i>)	
Until 4,800	1,104
4,801-55,000	$1,104 * ((55,000 - il_taxable_pertc) / 50,200)$

Source: Agenzia delle Entrate

Up to 2016 the tax credits for pension incomes of those aged below 75 years old were slightly less generous. See the model for the detailed amounts.

The tax credits related to employment income and pensions depends on the number of months in receipt of the given income source. The tax credit for employment income cannot be lower than 1,380€ per year if the individual has a temporary contract (*lap00 = 1*) or lower than 690€ per year otherwise (*lap00 = 0*). The tax credit for pensions cannot be lower than 713€ per year. They cannot be summed up, and the individual can choose the most profitable one.

Tax credits for dependent family members

The tax credits for dependent family members are different for the spouse, the children and other family members. Moreover, the tax credit changes with the children age (more or less than three years old) and the number of the children.

A family member is defined as *dependent* if she lives with the referent person and does not have more than 2,840.51 euro of gross income (*ils_origrepy*). The tax credit is decreasing in individual gross income (*il_taxable_pertc*) and it is computed according to the following table:

Table 18. Tax credits for dependent family members, amounts per year, 2015-2018

Spouse	
Up to 15,000	$800 - (110 * (il_taxable_perc / 15,000))$
15,001 – 29,000	690
29,001 – 29,200	700
29,201 – 34,700	710
34,701 – 35,000	720
35,001 – 35,100	710
35,101 – 35,200	700
35,201 – 40,000	690
40,001 – 80,000	$690 * ((80,000 - il_taxable_perc) / 40,000)$
80,000+	0
Child < 3 years old (potential tax credit)	
1220	
Child >=3 years old (potential tax credit)	
950	
Others	
$(750 * \text{number of dependent persons}) * ((80,000 - il_taxable_perc) / 80,000)$	

Source: Agenzia delle Entrate

The potential tax credit for dependent child is increased by 200 euro starting from the first child if there are more than three children.

To compute the final tax credit is necessary to calculate an “increment” given by the number of dependent children minus 1 times 15,000 (*sin09_s*).

Then we need to find the tax credit coefficient, by applying the following formula:

$$(95,000 + \text{Increment (i.e. } sin09_s) - \text{Total income (i.e. } il_taxable_perc)) / (95,000 + \text{Increment (i.e. } sin09_s))$$

The final amount of the tax credit for dependent children (*tintcch_s*) is equal to 0 when the tax credit coefficient is less than or equal to 0 (or equal or larger than 1). If the tax credit coefficient is between 0 and 1, the Tax credit for dependent children is equal to the potential tax credit times the tax credit coefficient

Usually the parents split the allowance 50% each (as in the baseline simulation). However, the parents can decide to assign the allowance to the one with the highest income.

If the head of tax unit is a lone parent and the tax credit for the potential spouse is greater than the tax credit for the oldest child, the difference is given as additional tax credit for lone parent (*tintclp_s*)

Tax credits for families with at least four children

Moreover, an additional refundable tax credit of 1,200 euro is given to families with at least four children (and for the whole year, regardless on when the fourth child was born).

2.6 Other taxes

2.6.1 Personal Income Regional additional tax (Addizionale Regionale all’IRPEF)

The regional additional tax (*Addizionale Regionale*) is computed on the same tax base (*il_taxable_regtax*) as the personal income tax (*IRPEF*). The tax rate is 0.9% but each region

can increase it of at most another 0.5%. In the following table we provide the tax rates for each region in the four considered years.

Taxation is generally graduated, with progressively higher marginal tax rates applying to higher income brackets except where the income brackets are asterisked (*): in that case the tax rate applies to the whole income according to the relevant classes. The simulated tax is stored in the variable *tinrg_s*. Note that the regional additional tax is positive only if the national personal income tax (after tax credits, i.e. *tinna_s*) is positive.

Table 19. Personal income regional additional tax rates, by region, 2015-2018

Var. drgn2	Region	2015		2016-2018	
		Income Brackets	Tax rate %	Income Brackets	Tax rate %
1	Piemonte *	≤15000	1.62	≤15000	1.62
		15000-28000	2.13	15000-28000	2.13
		28000-55000	2.75	28000-55000	2.75
		55000-75000	3.32	55000-75000	3.32
		>75000	3.33	>75000	3.33
2	Valle d'Aosta		1.23		1.23
3	Lombardia	≤15000	1.23	≤15000	1.23
		15000-28000	1.58	15000-28000	1.58
		28000-55000	1.72	28000-55000	1.72
		55000-75000	1.73	55000-75000	1.73
		>75000	1.74	>75000	1.74
4	Bolzano		0		0
			1.23		1.23
		Tax deduction of 20.000 euro for all taxpayers. <i>A tax credit of 252 euros is allowed for each dependent child, if taxpayer has income (including rental income subject to separate taxation) below 70.000 euro per year.</i>		Tax deduction of 28.000 euro for all taxpayers. <i>A tax credit of 252 euros is allowed for each dependent child, if taxpayer has income (including rental income subject to separate taxation) below 70.000 euro per year.</i>	
5	Trento*	If taxable income < 15000 and pension income positive, tax rate equal to 0	1.23	If taxable income < 20000 tax rate equal to 0	1.23
6	Veneto		1.23		1.23
7	Friuli Venezia Giulia	<15000	0.7	<15000	0.7
		>15000**	1.23	>15000**	1.23
8	Liguria	≤15000	1.23	≤15000	1.23
		15000-28000	1.81	15000-28000	1.81

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		28.000-55.000	2.31	28.000-55.000	2.31
		55.000-75.000	2.32	55.000-75.000	2.32
		>75000	2.33	>75000	2.33
9	Emilia Romagna	≤15000	1.33	≤15000	1.33
		15000--28000	1.93	15000--28000	1.93
		28000-55000	2.03	28000-55000	2.03
		55000-75000	2.23	55000-75000	2.23
		≥75000	2.33	≥75000	2.33
10	Toscana	≤15000	1.42	≤15000	1.42
		15000-28000	1.43	15000-28000	1.43
		28000-55000	1.68	28000-55000	1.68
		55000-75000	1.72	55000-75000	1.72
		>75000	1.73	>75000	1.73
11	Umbria	≤15000	1.23	≤15000	1.23
		15000-28000	1.63	15000-28000	1.63
		28000-55000	1.68	28000-55000	1.68
		55000-75000	1.73	55000-75000	1.73
		>75000	1.83	>75000	1.83
12	Marche	<15000	1.23	<15000	1.23
		15000-28000	1.53	15000-28000	1.53
		28000-55000	1.70	28000-55000	1.70
		55000-75000	1.72	55000-75000	1.72
		>75000	1.73	>75000	1.73
13	Lazio *	<35000	1.73	<35000	1.73
		If > 35000		If > 35000	
		0-15000	1.73	0-15000	1.73
		>15000	3.33	>15000	3.33
14	Abruzzo		1.73		1.73
15	Molise	<15000	2.03	<15000	1.73
		15000-28000	2.23	15000-28000	1.93
		28000-55000	2.43	28000-55000	2.13
		55000-75000	2.53	55000-75000	2.23
		>75000	2.63	>75000	2.33
16	Campania		2.03		2.03

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17	Puglia *	<15000	1.33	<15000	1.33
		15000-28000	1.43	15000-28000	1.43
		28000-55000	1.71	28000-55000	1.71
		55000-75000	1.72	55000-75000	1.72
		>75000	1.73	>75000	1.73
18	Basilicata *	<55.000	1.23	<55.000	1.23
		55.000-75.000	1.73	55.000-75.000	1.73
		>75000	2.33	>75000	2.33
19	Calabria		1.73		1.73
20	Sardegna		1.23		1.23
21	Sicilia		1.73		1.73 (1.50 from 2018)

Source: <http://www1.finanze.gov.it/finanze2/dipartimentopolitichefiscali/fiscalitalocale/addregirpef/sceltaregione.htm>

* In Piedmont, Lazio, Puglia and Basilicata the tax credits for dependent children (usually if more than 3 in the family) are increased at regional level, not simulated. ** Tax rate applied on the total taxable income if taxable income within the range

The only difference between 2016 and 2017 is in Lazio. The table below reports the rules for the year 2017-2018

13	Lazio *	<35000	1.73
		If > 35000	
		0-15000	1.73
		15000-28000	2.73
		28000-55000	2.93
		55000-75000	3.23
	75000+	3.33	

2.6.2 Taxation on Capital Income

Capital income is mainly subject to separate taxation. The separate taxation regime is articulated into two different tax rates shown in the table below. Long-term savings is encouraged by applying the lower rate.

In addition private pensions paid out in form of capital, arrears and severance pay are subject to separate taxation as well.

In the 2011 a reform of the taxation of capital incomes changed the tax rates levied on the Interests on bank and postal accounts (from 27% to 20%) and on the Interests on long-term bonds and dividends (from 12.5% to 20%). The exception remains related to the state bonds which are taxed at a lower 12.5% rate. From 1st July 2014 the standard rate increased to 26%.

Source of income (variable name)	Rates (%)
	2015-2018
Interests on bank and postal accounts (<i>yyitdp</i>)	26.0
Interests on State bonds and Postal Bonds (<i>yyitsb</i>)	12.5
Interests on long-term bonds - more than 18 months (<i>yyitob</i>)	26
Dividends (<i>yydv</i>)	26
Interests on Severity Benefit Funds and Private pensions Funds (Not simulated)	20
Private pensions paid out in form of capital (<i>ypp01</i>)	26.0
Arrears (<i>yempv</i>) and severance pay (<i>yunsv</i>)	26.0

Source: Bosi Guerra, various year. The increase of the tax rates from 1st July 2014 is simulated as if it was in place for the whole 2014.

2.6.3 Property tax

In 2009-2011, ICI is simulated (*tprob_s*) on the cadastral value of other buildings (raised by 5% and multiplied by a coefficient equal to 100) with an average tax rate equal to 0.64%.

Starting from fiscal year 2012, the Property Tax has been redesigned. The new tax is the IMU – *Imposta Municipale Propria*. The new tax is due by the same subjects as ICI.

The tax base for buildings registered at the cadastre is the cadastral value (*amriv* and *aobiv*, for main residence and other buildings respectively) raised by 5% and multiplied by a coefficient equal to 160.

Tax rates are different according to the type of building and municipalities can modify them. The baseline rates are: 0.4% for the main residence (*tprmr_s*); 0.76% for other buildings (*tprob_s*). In the case of main residences there is a deduction of 200 euro plus 50 euros for each dependent children aged 26 or less living in the household.

In 2013 the IMU on the main residence has been suspended.

In 2014 the new tax TASI has been applied to the cadastral income of main residences (*amriv*) raised by 5% and multiplied by a coefficient equal to 160. Tax rates are different according to the type of building and municipalities can modify them: in the simulation an average tax rate of 0.0017 has been applied, without considering any tax credit (due to lack of data).

From 2016 the TASI on the main residence has been abolished.

2.6.4 Personal income tax on rental income

Starting from fiscal year 2011, rental incomes can be subject to a withholding tax rate equal to 21% instead of being part of the taxable income (with an exemption of 15% of total rental income). The choice is up to the tax payer.

Due to lack of data, and even if the new tax (“*cedolare secca*”) is more convenient for most of the tax payers, in EUROMOD baseline simulation the rental income is still included in the taxable base for national and regional IRPEF. The user can decide to simulate the *cedolare secca* switching off the functions 16.1 and 16.2 and switching on the functions 16.3.

2.6.5 Bonus “80 euro” (*tintcent_s*)

Since May 2014 a new bonus is given to employees with taxable income below 26.000 euro per year. The bonus has been made definitive since January 2015 and transferred every month, for a maximum total of 960 euro per year. The annual amount depends on the number of days worked over the year.

In order to be eligible for the bonus the employees must earn over the year at least 8.000 euro (8174 euro in 2018), which is the limit below which the employee does not pay income tax.

The maximum amount (i.e. 80 euro per month) is given to employees with a taxable income below 24.000 euro per year and then it is linearly decreasing up to a maximum taxable income of 26.000 euro (in 2018 the thresholds are respectively 24.600 euro and 26.600 euro)

3. DATA

3.1 General description

The Italian database is based on Italian SILC data, provided by Istat in the framework of the research agreement signed between Istat, Università degli Studi dell’Insubria and Università degli Studi di Milano on 2018-May-31st, under condition that statistical confidentiality rules and personal data protection are guaranteed. It is the Italian component of the European Union Statistics on Income and Living Conditions (EU-SILC) enriched with some additional variables. It is a rotating panel survey (4 rotational groups), representative of the Italian population in private households. The survey takes place in the second half of the year following the income reference year.

The unit of assessment is the sociological household, defined as the persons living at the same address.

More information on technical issues concerning the Italian SILC 2016 can be found in the Quality Reports provided by Istat and Eurostat.

Table 21. EUROMOD database description

	Year 2015 (income reference period)
EUROMOD database	IT_2016_a2
Original name	ITSILC 2016
Provider	ISTAT
Year of collection	2016
Period of collection	2016 Q1 – 2016 Q4 (most in 2016 Q4)
Income reference period	2015
Sampling	2-stage sampling; with stratification of sampling units (no clustering of sampling units)
Unit of assessment	Italian household defined as cohabitants related through marriage, kinship, affinity, adoption, patronage and affection.
Coverage	Private households
Sample size	48,207 individuals 21,325 households

3.1.1 Weights

The weights provided in the Italian SILC are household weights, imputed for each person in the household. The weights were developed in four steps. The initial weights are the inverse of the inclusion probability of each household. The second step contains a slight correction for non-response both at household and individual level. Later, correction for over/under representation of certain population groups is implemented through calibration taking account of NUTS I-level and NUTS II-level, age, sex, amount of national and non national population. Finally, an integrative calibration is performed to make sure that members in the same household all receive the same weight. The following Table presents some basic descriptive statistics of the Grossing-up weights.

Table 22. Descriptive Statistics of the Grossing-up weights

IT_2016_a2	
Number	48,207
Mean	1251.78
Median	983.85
Minimum	34.26
Maximum	17338.36
Max/Min	506.08
Decile 1	122.61
Decile 9	2435.40
Dec 9 / Dec1	19.86

3.1.2 Item non-response and under-reporting

An overview of item non-response is provided in the Italian SILC Quality Report.

Concerning under-reporting, the Italian SILC Quality Report makes comparisons between some income target variables and the number of persons who receive income from each ‘income component’, with external sources. In particular, as external benchmarks, they use data from National Accounts and Labour Force Survey by ISTAT, Fiscal Agencies of the Ministry of the Economy and Pensions Register by INPS (National Institute for Social Security). The checked variables are: (i) Employee cash or near cash income (PY010N); (ii) a variable computed as the sum of Old-age benefits (PY100N), Survival benefits (PY110N) and Disability benefits (PY130N). No appreciable differences are found.

3.2 Data adjustment

Adjustments to variables are kept to a minimum. There is some minor data cleaning that is done to make sure that the relationships of individuals within households, are coherent (for example, that both partners identify each other correctly, to rule out inconsistencies in family structure).

3.3 Imputations and assumptions

3.3.1 Time period

All income information in EU-SILC 2016 (as well as in IT-SILC) refers to the fiscal year 2015 (January – December). Monetary amounts in the original variables are normally expressed in yearly totals, unless otherwise is indicated. For most income variables, information is included on how many months a certain income or benefit was received.

For the construction of the EUROMOD database from the Italian SILC, all monetary amounts are re-scaled to “an average month”, dividing yearly amount by 12.

In the EUROMOD database, the information refers as much as possible to the income reference period (i.e. 2015). Different sources of information available in EU-SILC are combined in order to ensure a consistent picture with regard to income sources and non-monetary information such as labour market and socio-economic characteristics. In order of preference:

- Direct information from IT-SILC referring to the income reference period (e.g. monthly labour market information) is being used where possible.
- In addition, information on the income reference period is derived from the current reference period (e.g. education activity, labour market activities).
- If no alternative is available, the current value is taken as the best proxy for the value during the income reference period (e.g. hours usually worked per week)

In this way, we approximate best the general consistency of the personal and household characteristics with the incomes that are reported.

Moreover, all children born after 31 December 2015 are dropped from the dataset.

3.3.2 Gross incomes

Although original data provide both net and gross income values for some income aggregates, we use only net value and reconstruct gross incomes at detailed level (i.e. each income source separately), according to the tax rules in place in 2015, via a microsimulation procedure built upon TABEITA, a microsimulation models developed and maintained at Econpubblica (Ceriani, Fiorio and Gigliarano, 2013).

In the previous release of SILC there was evidence of over reporting of self-employment income with respect to the reporting to the tax authority, mainly attributable to tax evasion. Self-employment income recorded in the survey was split in two components, assuming that only part of the total income had been declared to the tax authority and then grossed up. A calibration factor had been applied in order to obtain an aggregate amount of the gross self-employment income corresponding to that reported in fiscal data. The user could decide whether running EUROMOD considering such a correction for tax evasion or not (sheet *TCA_it*). However, in IT-SILC 2016 self-employment income (as most of other income sources) comes from administrative data and then it corresponds only to the part declared to the tax authority.

3.3.3 Other imputed variables

Due to lack of information in the IT-SILC 2015 data, the variables *amriv* and *aobiv* (cadastral value of main and secondary residences, respectively) have been imputed by a statistical matching using more detailed information contained in the Survey of Household Income and Wealth released by Bank of Italy. For more details see Ceriani, Fiorio and Gigliarano (2013).

3.4 Updating

To account for any time inconsistencies between the input dataset and the policy year, updating factors are used. Each monetary variable (i.e. each income component) is updated so as to account for changes in the non-simulated variables that have taken place between the year of the data and the year of the simulated tax-benefit system. Updating factors are generally based on changes in the average value of an income component between the year of the data and the policy year.

As a rule, updating factors are provided both for simulated and non simulated income components present in the input dataset. Note however that in the case of simulated variables, the actual simulated amounts are used in the baseline rather than the updated original variables

in the dataset. Updating factors for simulated variables are provided so as to facilitate the use of the model in cases when the user wishes to turn off the simulation of a particular variable. The list of uprating factors can be found in Table 25.

No other updating adjustments are employed. Thus the distribution of characteristics (such as employment status and demographic variables) as well as the distribution of each non simulated income source remain as they were in 2015.

It is important to note that, as part of the austerity measures package (see Avram et al. 2013, Figari and Fiorio 2015) the public salaries and pensions (above three times the minimum level) are not fully indexed from 2011 to 2016.

The indexation of public pensions follow the institutional rules (uprating by bands and up to some limits) and it is implemented in the policy *uprate_bands_it*. See the model for details.

Table 23. Raw indices for deriving EUROMOD uprating factors

Index	Constant name	Values of the raw indices			
		2015	2016	2017	2018
Harmonized index of consumer prices	\$HICP	100	99.9	101.3	102.53
Salary index, private sector	\$f_yempri	124.7	125.5	126.1	127.25
Salary index, public sector	\$f_yempub	115.2	115.2	115.2	116.79
Interest rate	\$f_yiy	0.007	0.007	0.006	0.007
Property income index	\$f_ypr	146.99	146.9	148.52	149.65
Cadastral income index	\$f_aobiv	0.4976	0.4971	0.5021	0.5081
Self-employment income index	\$f_yse	17.09	17.09	17.25	17.45
FOI index	\$f_foi	146.99	146.9	148.52	149.65
Total social assistance fund (x1000)	\$f_bsa	278192953	277790028	27696323	276963236
Unemployment ben. threshold €/month	\$f_bun	1167.91	1300	1300	1314.3
Disability benefit threshold, €/month	\$f_pdi	880.7	899.38	911.53	948.18
Disability pension threshold, €/month	\$f_phl	302.53	302.23	302.23	305.56
Old age pension average	\$f_poa_avg	16601	16879	16879	16879
Survivors pension average	\$f_psu_avg	8683	8778	8778	8778
Disability pension average	\$f_pdi_avg	5029	5114	5114	5114
Invalidity pension average	\$f_phl_avg	8740	8886	8886	8886

4. VALIDATION

4.1 Aggregate Validation

In this section we present the validation results from our model. First we compare how well the survey represents aggregate data for the main income sources included in the model and not simulated. This is followed by the tables which show how 2015 income data are updated to represent 2016-2018. After that we present the validation of the simulated instruments: income taxes (and its components), social insurance contributions, benefits (Family Allowance and Social Allowance for elderly). We present figures related to both income aggregates and the numbers of receivers or payers (where available). All the results are obtained correcting the self-employment income for tax evasion (see above). Section 4.2 includes distributional statistics, such as income deciles, inequality indices and poverty measures within socio-economic groups.

4.1.1 Non simulated incomes

To check how well the Italian SILC, which is the basis also for EU-SILC, represents actual aggregate data, we compare income components (wages and various benefits) between the survey and administrative source (Agenzia delle Entrate, various years). Aggregate amounts from EUROMOD are obtained using the gross incomes reconstructed by the net-to-gross procedure explained above.

Overall the survey matches quite well the administrative sources, with an overestimation of employment income, unemployment benefits and self-employment income around 5%. The comparison of the property income with external statistics is particularly problematic due to the inclusion of different components in the aggregate statistics (see Notes to the Tables). The comparison of the number of recipients needs to be done with caution because the unit of analysis in the survey and in the administrative statistics are not always strictly comparable. This is, in particular, the case of property income but also self-employment income because the same individual can have more than one source of self-employment income and the.

Table 24. EUROMOD validation: income sources included and not simulated, 2015

	Recipients (unit)			Amount (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employment income and Unemployment benefits	24,636,189	21,281,668	1.16	460,830,000,998	434,694,376,000	1.06
Self-employment income	7,275,427	6,261,689	1.16	111,094,677,749	107,044,682,000	1.04
Property income	29,771,723	---	---	51,007,457,126	48,209,564,222	1.06
Pensions	13,841,287	14,774,432	0.94	243,054,154,420	249,226,307,000	0.98

Notes: Property income in EUROMOD is obtained by the sum of taxable rent and cadastral income of main residence and other buildings (imputed due to the lack of info in the original data). Self-employment income not corrected for tax evasion because originally derived from amount data. Amounts are expressed in euro per year. Sources: Agenzia delle Entrate, Analysis of Tax Records.

Next we evaluate how well the 2015 income data are updated to represent 2016-2018. Using the uprating factors of monetary values included in the model, we are able to capture quite well the aggregate amounts. The unchanged socio-economic structure of the data (i.e. we do not apply any re-weighting of the data) could be a potential problem in the representation of the aggregate numbers of recipients, in particular in years subject to important changes in the labour market as those affected by the economic crisis. However, it seems that the figures are not affected by substantial changes over the period, with the exception of property income which results to be overestimated in EUROMOD over the period, due to the difficulty of defining accurate uprating factors.

Table 25. EUROMOD validation: income sources included and not simulated, 2016

	Recipients (unit)			Amount (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employment income and Unemployment benefits	24,636,189	21,593,955	1.14	465,824,970,362	441,452,410,000	1.06
Self-employment income	7,275,427	5,966,819	1.22	111,094,677,749	107,183,091,000	1.04
Property income	29,771,723	---	---	50,967,529,894	49,619,480,365	1.03
Pensions	13,841,287	14,622,078	0.95	243,037,151,842	251,116,116,000	0.97

Notes: Property income in EUROMOD is obtained by the sum of taxable rent and cadastral income of main residence and other buildings (imputed due to the lack of info in the original data). Self-employment income not corrected for tax evasion because originally derived from amount data. Amounts are expressed in euro per year. Sources: Agenzia delle Entrate, Analysis of Tax Records.

Table 26. EUROMOD validation: income sources included and not simulated, 2017

	Recipients (unit)			Amount (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employment income and Unemployment benefits	24,636,189	---	---	467,327,291,459	---	---
Self-employment income	7,275,427	---	---	112,134,762,994	---	---
Property income	29,771,723	---	---	51,507,666,493	---	---
Pensions	13,841,287	---	---	243,103,506,474	---	---

Notes: Property income in EUROMOD is obtained by the sum of taxable rent and cadastral income of main residence and other buildings (imputed due to the lack of info in the original data). Self-employment income not corrected for tax evasion because originally derived from amount data. Amounts are expressed in euro per year. Sources: Agenzia delle Entrate, Analysis of Tax Records.

Table 27. EUROMOD validation: income sources included and not simulated, 2018

	Recipients (unit)			Amount (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employment income and Unemployment benefits	24,636,189	---	---	472,162,692,945	---	---
Self-employment income	7,275,427	---	---	113,434,883,975	---	---
Property income	29,771,723	---	---	51,998,401,370	---	---
Pensions	13,841,287	---	---	245,321,467,806	---	---

Notes: Property income in EUROMOD is obtained by the sum of taxable rent and cadastral income of main residence and other buildings (imputed due to the lack of info in the original data). Self-employment income not corrected for tax evasion because originally derived from amount data. Amounts are expressed in euro per year. Sources: Agenzia delle Entrate, Analysis of Tax Records.

4.1.2 Simulated income tax

Income tax revenue (IRPEF) is simulated at about 103% level over the different years. The number of tax payers matches quite well that in administrative sources, but again the caveat about the comparison of the numbers related to taxpayers (in particular for the detailed tax components) should be borne in mind.

The validation of each component of the income tax is presented in the tables below. Deductions and tax credit that cannot be simulated have been imputed using a calibration factor derived, by income bands, from external statistics. Some aggregates do not capture precisely the external statistics but given their size relative to the total tax revenue they do not affect the results substantially.

The regional additional income tax is overestimated by 1-2%, in line with the national IRPEF.

Table 28. EUROMOD validation: income taxes, 2015

	Taxpayers (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Total taxable income	42,279,595	40,251,740	1.05	849,438,777,429	832,970,075,000	1.02
Deduction for main residence	27,772,299	-	---	12,631,589,291	12,275,538,516	1.03
Imputed deductions	6,550,749	7,335,603	0.89	1,712,300,747	1,917,105,000	0.89
Total deductions	15,656,061	7,343,167	2.13	30,589,672,174	25,466,367,000	1.20
Net taxable income	39,064,759	39,477,883	0.99	806,156,054,880	790,141,816,000	1.02
Gross tax (IRPEF)	38,778,124	38,537,747	1.01	218,596,995,262	214,152,686,000	1.02
Family tax credits	14,207,604	12,590,717	1.13	13,266,274,259	12,782,865,000	1.04
Tax credits for income sources	35,971,994	35,784,388	1.01	42,114,850,055	41,592,039,000	1.01
Tax credits for mortgage interest (at 19%)	3,313,410	3,633,647	0.91	1,308,658,043	1,002,409,000	1.31
Tax credit for health related expenditures	16,903,546	17,416,837	0.97	3,117,346,782	3,173,997,310	0.98
Other tax credits	18,838,282	0	---	493,897,650	556,856,000	0.89
Tax credit on life insurance	4,823,710	5,229,139	0.92	268,815,703	283,494,000	0.95
Tax credit on educational expenditures	3,525,816	1,533,514	2.30	338,198,178	343,602,000	0.98
Tax credits on refurbishment (at 36%)	15,725,488	11,858,823	1.33	5,835,349,634	6,262,168,000	0.93
Total tax credit	63,130,251	38,406,768	1.64	66,743,390,304	66,069,976,000	1.01
Net tax (IRPEF)	30,003,278	30,878,816	0.97	159,280,078,513	155,157,955,000	1.03
Regional additional income tax (IRPEF)	29,880,103	29,317,492	1.02	12,167,950,606	11,847,263,000	1.03
Tax on capital income	14,556,597	---	---	2,108,081,295	---	---
Property tax on main residence (TASI)	---	---	---	3,607,709,622	3,501,495,741	1.03
Property tax on other buildings (IMU seconda casa)	---	---	---	17,626,036,920	21,200,000,000	0.83

Notes: Revenue amounts are expressed in euro per year. Sources: Agenzia delle Entrate, Analysis of Tax Records; Agenzia del Territorio, Gli immobili in Italia (for data on deduction for main residence).

Table 29. EUROMOD validation: income taxes, 2016

	Taxpayers (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Total taxable income	42,279,595	40,262,232	1.05	852,895,168,637	842,977,946,000	1.01
Deduction for main residence	27,772,299	-	---	12,619,024,254	12,540,555,668	1.01
Imputed deductions	6,550,749	7,266,845	0.90	1,714,729,122	2,055,768,000	0.83
Total deductions	15,656,061	7,274,749	2.15	31,073,946,995	26,325,682,000	1.18
Net taxable income	39,064,759	39,457,256	0.99	809,139,924,702	797,504,979,000	1.01
Gross tax (IRPEF)	38,781,629	38,515,935	1.01	219,494,657,117	216,346,644,000	1.01
Family tax credits	14,215,734	12,494,817	1.14	13,249,969,169	12,626,871,000	1.05
Tax credits for income sources	35,955,721	35,710,342	1.01	42,368,297,935	42,102,097,000	1.01
Tax credits for mortgage interest (at 19%)	3,313,410	3,649,850	0.91	1,307,741,994	929,140,000	1.41
Tax credit for health related expenditures	16,903,546	18,070,198	0.94	3,122,046,806	3,362,081,160	0.93
Other tax credits	18,838,282	0	---	494,809,191	621,465,000	---
Tax credit on life insurance	4,823,710	5,151,795	0.94	268,834,667	273,580,000	0.98
Tax credit on educational expenditures	3,525,816	1,534,507	2.30	337,505,231	356,533,000	0.95
Tax credits on refurbishment (at 36%)	15,725,488	13,231,463	1.19	5,829,510,106	7,205,592,000	0.81
Total tax credit	63,130,251	38,409,306	1.64	66,978,715,099	67,553,208,000	0.99
Net tax (IRPEF)	29,813,738	30,781,688	0.97	159,999,632,161	156,047,262,000	1.03
Regional additional income tax (IRPEF)	29,599,827	29,104,653	1.02	12,161,834,766	11,948,278,000	1.02
Tax on capital income	14,556,597	---	---	2,108,081,295	---	---
Property tax on other buildings (IMU seconda casa)	---	---	---	17,608,286,368	19,800,000,000	0.89

Notes: Revenue amounts are expressed in euro per year. Sources: Agenzia delle Entrate, Analysis of Tax Records; Agenzia del Territorio, Gli immobili in Italia (for data on deduction for main residence).

Table 30. EUROMOD validation: income taxes, 2017

	Taxpayers (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Total taxable income	42,279,595	-	---	857,134,731,570	-	---
Deduction for main residence	27,772,299	-	---	12,745,843,078	-	---
Imputed deductions	6,550,749	-	---	1,719,003,763	-	---
Total deductions	15,656,061	-	---	31,785,405,213	-	---
Net taxable income	39,064,759	-	---	812,603,435,498	-	---
Gross tax (IRPEF)	38,781,629	-	---	220,537,162,993	-	---
Family tax credits	14,217,149	-	---	13,241,498,552	-	---
Tax credits for income sources	35,925,727	-	---	42,580,869,073	-	---
Tax credits for mortgage interest (at 19%)	3,313,410	-	---	1,320,298,415	-	---
Tax credit for health related expenditures	16,903,546	-	---	3,128,294,071	-	---
Other tax credits	18,838,282	-	---	496,008,075	-	---
Tax credit on life insurance	4,823,710	-	---	269,311,095	-	---
Tax credit on educational expenditures	3,524,806	-	---	337,578,963	-	---
Tax credits on refurbishment (at 36%)	15,725,488	-	---	5,911,189,529	-	---
Total tax credit	63,129,241	-	---	67,285,047,772	-	---
Net tax (IRPEF)	29,900,256	-	---	160,762,374,113	-	---
Regional additional income tax (IRPEF)	29,685,205	-	---	12,126,311,541	-	---
Tax on capital income	14,556,597	-	---	1,806,812,651	-	---
Property tax on other buildings (IMU seconda casa)	---	-	---	17,785,396,033	-	---

Notes: Revenue amounts are expressed in euro per year.

Table 31. EUROMOD validation: income taxes, 2018

	Taxpayers (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Total taxable income	42,279,595	-	---	865,757,438,490	-	---
Deduction for main residence	27,772,299	-	---	12,898,275,990	-	---
Imputed deductions	6,550,749	-	---	1,722,582,497	-	---
Total deductions	15,656,061	-	---	32,602,484,212	-	---
Net taxable income	39,064,759	-	---	820,256,707,957	-	---
Gross tax (IRPEF)	38,781,629	-	---	223,009,187,112	-	---
Family tax credits	14,201,776	-	---	13,194,826,864	-	---
Tax credits for income sources	35,887,351	-	---	42,317,508,287	-	---
Tax credits for mortgage interest (at 19%)	3,313,410	-	---	1,331,197,424	-	---
Tax credit for health related expenditures	16,903,546	-	---	3,141,670,291	-	---
Other tax credits	18,838,282	-	---	498,687,832	-	---
Tax credit on life insurance	4,823,710	-	---	270,146,520	-	---
Tax credit on educational expenditures	3,524,091	-	---	336,433,525	-	---
Tax credits on refurbishment (at 36%)	15,725,488	-	---	5,982,745,627	-	---
Total tax credit	63,128,527	-	---	67,073,216,370	-	---
Net tax (IRPEF)	30,030,765	-	---	163,339,063,681	-	---
Regional additional income tax (IRPEF)	29,816,844	-	---	12,232,047,185	-	---
Tax on capital income	14,556,597	-	---	2,108,081,295	-	---
Property tax on other buildings (IMU seconda casa)	---	-	---	17,997,925,088	-	---

Notes: Revenue amounts are expressed in euro per year.

4.1.3 Simulated social contributions

Due to lack of external data we are not able to validate the number of individuals paying social insurance contributions. Overall, we over-simulate self-employed and employee SICs and under simulate the employer SIC. One potential reason is that we apply the minimum contribution on an annual basis, but we lack important information to simulate the minimum correctly (a user can decide to simulate the minimum contribution on a monthly basis by simply switching on and off the relevant functions already implemented in EUROMOD). Moreover, the data do not contain precise information to simulate the social contributions according to the specific characteristics of the employees and their firms.

Table 32. EUROMOD validation: social contributions, 2015

	Contributors (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employer SICs	19,393,426	---	---	149,789,696,233	163,890,000,000	0.91
Employee SICs	19,381,266	---	---	50,912,082,059	42,306,000,000	1.20
Self employment SICs	7,275,427	---	---	23,847,932,210	19,229,107,000	1.24

Notes: Revenue amounts are expressed in euro per year. Sources: MEF, *I conti della Protezione Sociale* - Tabella 6 and Agenzia delle Entrate, Analysis of Tax Records.

Table 33. EUROMOD validation: social contributions, 2016

	Contributors (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employer SICs	19,393,426	---	---	150,534,252,374	165,851,000,000	0.91
Employee SICs	19,381,266	---	---	51,187,755,015	43,019,000,000	1.19
Self employment SICs	7,275,427	---	---	24,312,161,191	19,518,751,000	1.25

Notes: Revenue amounts are expressed in euro per year. Sources: MEF, *I conti della Protezione Sociale* - Tabella 6 and Agenzia delle Entrate, Analysis of Tax Records.

Table 34. EUROMOD validation: social contributions, 2017

	Contributors (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employer SICs	19,393,426	---	---	151,125,423,586	---	---
Employee SICs	19,381,266	---	---	51,413,588,044	---	---
Self employment SICs	7,275,427	---	---	24,993,516,263	---	---

Notes: Revenue amounts are expressed in euro per year. Sources: MEF, *I conti della Protezione Sociale* - Tabella 6 and Agenzia delle Entrate, Analysis of Tax Records.

Table 35. EUROMOD validation: social contributions, 2018

	Contributors (unit)			Revenue (unit)		
	EUROMOD	External source	Ratio	EUROMOD	External source	Ratio
Employer SICs	19,393,426	---	---	152,850,660,458	---	---
Employee SICs	19,381,266	---	---	52,020,930,556	---	---
Self employment SICs	7,275,427	---	---	25,755,456,221	---	---

Notes: Revenue amounts are expressed in euro per year.

4.1.4 Social benefits

Simulated benefits in EUROMOD include: the Family Allowances, the Social Allowance for elderly, the “80 euro bonus” (since 2014), the *Reddito di Inserimento* (since 2018) plus other minor benefits (mother bonus, new born bonus) which are not included in the validation tables. Mainly, there are no information on the number of recipients in external statistics while figures provided by EUROMOD refer to households.

The simulated aggregates match quite well the external statistics from ISTAT. However, the caveat mentioned above about the simulation of the two benefits need to be borne in mind. In particular, comparing the simulated amount of the Family Allowances and the Social Allowance for elderly with the ones recorded in the survey, it can emerge a mismatch of families receiving the benefits with a likely greater impact on poverty reduction of the simulated benefits. The “80 euro” bonus results to be undersimulated by around 20% which can be related to the misspecification of declared employment income in the bottom part of the income distribution.

The social benefits included and not simulated match quite well the external statistics (with the main exception of social assistance benefits which are determined at local level and not well captured by the input data) with signals of a likely misclassification of income sources among the different components which need to be born in mind in the interpretation of the figures provided below.

Table 36. EUROMOD validation: benefits, 2015

	Recipients	Expenditure (euro)		
	(unit)	EUROMOD	External source	Ratio
<i>Included</i>				
Old age pension and early retirement	10,565,380	185,085,556,291	211,552,000,000	0.87
Sickness and invalidity pension	4,090,505	31,502,841,409	28,597,000,000	1.10
Survivor pension	4,269,655	40,826,717,575	43,343,000,000	0.94
Unemployment	2,526,604	10,610,187,054	12,005,000,000	0.88
Supplementation wage scheme	978,940	2,315,283,451	2,610,000,000	0.89
Severance pay	4,109,339	18,912,922,458	23,572,000,000	0.80
Other allowances - assistance	1,167,414	2,725,282,574	13,868,000,000	0.20
<i>Simulated</i>				
Family allowances	6,540,713	6,437,258,799	6,197,000,000	1.04
Social pension	1,466,013	6,005,833,015	4,752,000,000	1.26
"80 euro" bonus	8,995,743	7,707,501,735	8,963,990,000	0.86
<i>Data variable</i>				
Family allowances	5,897,358	5,850,280,928	6,409,000,000	0.91
Social pension	829,915	4,460,996,693	4,462,000,000	1.00

Sources: ISTAT, *Conti della protezione sociale*, http://dati.istat.it/Index.aspx?DataSetCode=DCCN_PROTSOC

Table 37. EUROMOD validation: benefits, 2016

	Recipients	Expenditure (euro)		
	(unit)	EUROMOD	External source	Ratio
<i>Included</i>				
Old age pension and early retirement	10,565,380	185,085,557,011	211,392,000,000	0.88
Sickness and invalidity pension	4,090,505	31,790,372,473	30,868,000,000	1.03
Survivor pension	4,269,655	40,826,717,575	43,925,000,000	0.93
Unemployment	2,526,604	11,810,196,071	12,482,000,000	0.95
Supplementation wage scheme	978,940	2,577,139,111	2,146,000,000	1.20
Severance pay	4,109,339	18,894,009,791	23,528,000,000	0.80
Other allowances - assistance	1,167,414	2,722,390,436	14,545,000,000	0.19
<i>Simulated</i>				
Family allowances	6,526,664	6,404,316,773	6,350,000,000	1.01
Social pension	1,337,060	5,535,436,220	4,872,000,000	1.14
"80 euro" bonus	8,948,216	7,655,712,103	9,367,714,000	0.82
<i>Data variable</i>				
Family allowances	5,897,358	5,844,424,709	6,350,000,000	0.92
Social pension	829,915	4,456,529,175	4,872,000,000	0.91

Sources: ISTAT, *Conti della protezione sociale*, http://dati.istat.it/Index.aspx?DataSetCode=DCCN_PROTSOC

Table 38. EUROMOD validation: benefits, 2017

	Recipients (unit)		Expenditure (euro)		Ratio
	EUROMOD	EUROMOD	External source		
<i>Included</i>					
Old age pension and early retirement	10,565,380	185,151,911,644	---	-	
Sickness and invalidity pension	4,090,505	31,988,551,856	---	-	
Survivor pension	4,269,655	40,826,717,575	---	-	
Unemployment	2,526,604	11,810,196,071	---	-	
Supplementation wage scheme	978,940	2,577,139,111	---	-	
Severance pay	4,109,339	19,158,796,523	---	-	
Other allowances - assistance	1,167,414	2,754,319,295	---	-	
<i>Simulated</i>					
Family allowances	6,512,772	6,380,526,495	---	-	
Social pension	1,289,156	5,418,299,217	---	-	
"80 euro" bonus	8,902,731	7,603,146,674	---	-	
<i>Data variable</i>					
Family allowances	5,897,358	5,926,357,650	---	-	
Social pension	829,915	4,518,980,933	---	-	

Sources: ISTAT, *Conti della protezione sociale*, http://dati.istat.it/Index.aspx?DataSetCode=DCCN_PROTSOC

Table 39. EUROMOD validation: benefits, 2018

	Recipients (unit)		Expenditure (euro)		Ratio
	EUROMOD	EUROMOD	External source		
<i>Included</i>					
Old age pension and early retirement	10,565,380	186,761,705,983	---	-	
Sickness and invalidity pension	4,090,505	32,774,921,542	---	-	
Survivor pension	4,269,655	41,246,193,800	---	-	
Unemployment	2,526,604	11,940,105,664	---	-	
Supplementation wage scheme	978,940	2,605,491,441	---	-	
Severance pay	4,109,339	19,391,421,799	---	-	
Other allowances - assistance	1,167,414	2,783,320,465	---	-	
<i>Simulated</i>					
Family allowances	6,498,452	6,329,674,452	---	-	
Social pension	1,293,620	5,464,333,805	---	-	
"80 euro" bonus	9,139,846	7,845,827,761	---	-	
<i>Reddito di inserimento</i>	813,396	1,100,136,039	---	-	
<i>Data variable</i>					
Family allowances	5,897,358	5,998,282,508	---	-	
Social pension	829,915	4,573,837,408	---	-	

Sources: ISTAT, *Conti della protezione sociale*, http://dati.istat.it/Index.aspx?DataSetCode=DCCN_PROTSOC

4.2 Income distribution

All income distribution results presented here are computed for individuals according to their household disposable income (HDI) equivalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions. The weights in the OECD equivalence are: first adult=1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

For 2015, we compare our results with statistics based on the Italian version of SILC data (same sample of EUROMOD data).

4.2.1 Poverty

The overall relative poverty rate is well simulated by EUROMOD with respect to SILC. Simulated elderly poverty rates are lower than reported in the data: it is likely that the main reason is due to the fact that the simulated Social Allowance for elderly is more generous than the one reported in the data.

Table 40. EUROMOD validation: poverty rates at different poverty lines, 2015

Percentage of individuals below:	EUROMOD	SILC	Ratio
All			
40%	0.10	0.10	1.02
50%	0.14	0.14	0.97
60%	0.20	0.21	0.95
70%	0.27	0.28	0.94
Children (<= 18)			
40%	0.14	0.13	1.02
50%	0.19	0.19	1.00
60%	0.25	0.27	0.94
70%	0.33	0.36	0.91
Elderly (>=65)			
40%	0.03	0.04	0.78
50%	0.05	0.08	0.69
60%	0.12	0.15	0.81
70%	0.22	0.23	0.96
Females			
40%	0.10	0.10	1.01
50%	0.14	0.14	0.95
60%	0.20	0.21	0.94
70%	0.27	0.29	0.93
Males			
40%	0.10	0.10	1.04
50%	0.14	0.14	0.99
60%	0.19	0.20	0.96
70%	0.26	0.27	0.95

Notes: Computed for individuals according to their household disposable income (HDI) equivalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions.

Table 41. EUROMOD validation: poverty rates at different poverty lines, 2015 – 2018

Percentage of individuals below:		EUROMOD			
		2015	2016	2017	2018
All					
	40%	0.10	0.10	0.10	0.10
	50%	0.14	0.14	0.14	0.14
	60%	0.20	0.19	0.19	0.19
	70%	0.27	0.27	0.26	0.26
Children (<= 18)					
	40%	0.14	0.14	0.14	0.13
	50%	0.19	0.19	0.19	0.19
	60%	0.25	0.25	0.25	0.25
	70%	0.33	0.32	0.32	0.32
Elderly (>=65)					
	40%	0.03	0.03	0.03	0.03
	50%	0.05	0.05	0.05	0.05
	60%	0.12	0.12	0.12	0.12
	70%	0.22	0.22	0.21	0.21
Females					
	40%	0.10	0.10	0.10	0.10
	50%	0.14	0.14	0.14	0.14
	60%	0.20	0.20	0.20	0.20
	70%	0.27	0.27	0.27	0.27
Males					
	40%	0.10	0.10	0.10	0.10
	50%	0.14	0.14	0.14	0.14
	60%	0.19	0.19	0.19	0.19
	70%	0.26	0.26	0.26	0.26

Notes: Computed for individuals according to their household disposable income (HDI) equivalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions.

4.2.2 Income inequality

Tables below show the main inequality indices from EUROMOD and SILC. First of all, the Gini index for Original Income is reported from EUROMOD: it is around 0.53 in the four years considered. Gini coefficient of disposable income is slightly lower in EUROMOD than in SILC. Comparison of disposable equivalised income (median) at different income deciles shows that we slightly undersimulate the median equivalised income. Without considering any change in the structure of the population, the inequality remains stable over the four years considered.

Table 42. EUROMOD validation: income inequality, 2015

	EUROMOD	SILC	Ratio
Gini Coefficient Original Income	0.53		---
Gini Coefficient Disposable Income	0.32	0.33	0.96
Median income per decile			
1	275.00	315.00	0.87
2	662.99	706.33	0.94
3	855.33	877.50	0.97
4	1014.73	1037.68	0.98
5	1174.45	1219.21	0.96
6	1364.21	1418.93	0.96
7	1561.66	1612.27	0.97
8	1779.98	1854.02	0.96
9	2100.31	2200.72	0.95
10	2875.67	3107.00	0.93
Mean income (unequalised)	976.27	1061.77	0.92
Mean income (equalised)	1407.68	1531.34	0.92
Median income (equalised)	1265.54	1356.70	0.93

Notes: Computed for individuals according to their household disposable income (HDI) equalised by the “modified OECD” equivalence scale. With the exception of the first line, all figures refer to disposable income.

Table 43. EUROMOD validation: income inequality, 2015-2018

EUROMOD validation: income inequality, 2009 - 2013	EUROMOD			
	2015	2016	2017	2018
Gini Coefficient Original Income	0.53	0.53	0.53	0.53
Gini Coefficient Disposable Income	0.32	0.32	0.32	0.32
Median income per decile	0.00			
1	275.00	280.42	289.74	303.15
2	662.99	671.91	676.90	680.56
3	855.33	865.47	871.08	879.13
4	1014.73	1026.68	1032.09	1041.10
5	1174.45	1187.91	1194.16	1204.95
6	1364.21	1378.72	1385.72	1398.99
7	1561.66	1574.08	1580.84	1595.41
8	1779.98	1796.88	1801.68	1818.57
9	2100.31	2116.80	2123.74	2144.02
10	2875.67	2894.30	2897.89	2925.69
Mean income (unequalised)	976.27	984.78	988.62	999.67
Mean income (equalised)	1407.68	1420.00	1425.80	1441.58
Median income (equalised)	1265.54	1277.61	1285.30	1298.42

Notes: Computed for individuals according to their household disposable income (HDI) equalised by the “modified OECD” equivalence scale. With the exception of the first line, all figures refer to disposable income.

4.3 Summary of “health warnings”

This final section summarises the main findings in terms of particular aspects of the Italian part of EUROMOD that should be borne in mind when planning appropriate uses of the model and in interpreting the results. In particular:

- The correction of self-employment income for tax evasion is made by a coefficient proportional to the net self-employment income declared in the data. The user can decide to switch off such a correction in the *TCA_it* policy sheet. Using the latest available input dataset (IT_2016_a2) the correction for tax evasion is not available because the input dataset uses administrative data (by definition collecting only the income reported to tax authority). Any difference in self-employment income with respect to previous years needs to be taken into account such important difference at the data collection stage.
- The simulation of the property tax is based on an imputed value of cadastral income for main and other residences, derived using information on the possession of residences, the imputed rent, other information included in the Survey of Household Income and Wealth (Bank of Italy) aggregated by decile groups, and finally calibrating the total amount of cadastral income according to the information provided in the official sources.
- The simulation of Family Allowances is subject to limitations related to the lack of information on disability status, income and family composition in the income reference period (which is the solar year before the 1st of July of each year, and it remains valid until the 30th of June of the following year). Therefore, for example, for the period between the 1st of July 2017 and the 30th of June 2018, income produced in 2016 is taken into account. For the simulation of the benefit, we assume the family income to stay constant in two consecutive years and we use the income thresholds as of 1st July (instead of 30th June).

In the ongoing process of EUROMOD updating and maintenance the following changes are suggested for the users who download the public release I1.0+. The following changes affect the results but are NOT taken into account in the macrovalidation tables presented above which reflect the results a user gets with the public release version I1.0+:

- *tintciw_s*: the ArithOp Function at 26.4 should be switched on (2015 system)
- *bfaba_it*: in the Ben_Calc function at 35.2 *Comp_perTU* should be replaced by *Comp_perElig* (all years)
- *bsamm_it*: in the Elig function at 36.7 *iyi* should be replaced by $iyi*3/100$ to approximate the value of the financial asset (i.e. assuming an interest rate of 3%) (2018 system)

Users are encouraged to check themselves the validity of the simulations and to let the National Team know about any bug they might find or improvement they want to suggest.

5. REFERENCES

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APPENDIX: POLICY EFFECTS

Table A1-A4 and Figure A1-A4 show the effect of policy changes in each year with respect to the previous year (e.g. 2015-2016, ...) on mean equivalised household disposable income by income component and income decile group, as a percentage of mean equivalised household disposable income in the starting year. Each policy system has been applied to the same input data, deflating monetary parameters of the new year (i.e. 2016 for the analysis of the policy effects 2015-2016) policies by Eurostat's Harmonized Index of Consumer Prices (HICP).

2015-2016

Table A1 and Figure A1 shows the changes on disposable income in the period 2015-16. In 2016 the property tax (included in the direct taxes, red bar) on the house of residence has been (again) abolished (with the exception of luxury houses, not identified in our data; red bar) with a clear positive impact in particular for those in the first half of the income distribution.

2016-2017

In 2017 a number of policy changes have a positive impact on pensioners: i) it has been extended the extra payment (i.e. *quattordicesima*) for pensioners with income below a certain limit (green bar), ii) the tax credits related to income from pensions have been made more generous, iii) the solidarity contribution and the reduction of pensions above 91251.16 euro per year have not been renewed in 2017. However, all public pensions have not been indexed and the overall net effect on disposable income (when using a CPI change factor equal to 1.014) is negative, in particular for those in the second part of the income distribution.

In 2017, the new born bonus covers the babies up to three years old showing a largest coverage for those in the first decile group. The other changes observed in the Figure A2 due to direct taxes are overall more related to the indexation assumption rather than changes in the policies.

2017-2018

In 2018 the *Reddito di Inclusione (REI)* has been introduced as the new policy instrument to support family income. In 2018 REI (without family conditions) is given only for 6 months (from July, 1st). The effect on disposable income (assuming full take-up) is clear in Figure A3 (blue bar) for those in the first income decile group who experience a positive change of around 8%.

Table A1: Policy effects in 2015-2016, using the CPI-indexation, %

Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Other SIC	Direct taxes	Disposable income
1	0.00	0.11	-0.05	0.67	0.00	-0.22	0.00	1.98	2.48
2	0.00	0.09	-0.24	0.48	-0.01	-0.13	0.00	0.94	1.13
3	0.00	0.09	0.09	0.33	-0.01	-0.07	0.00	0.71	1.14
4	0.00	0.08	-0.03	0.34	-0.01	-0.06	0.00	0.56	0.88
5	0.00	0.10	0.05	0.22	-0.01	-0.07	0.00	0.60	0.89
6	0.00	0.09	0.01	0.24	-0.01	-0.06	0.00	0.51	0.79
7	0.00	0.08	0.02	0.24	-0.01	-0.05	0.00	0.46	0.74
8	0.00	0.06	0.03	0.20	-0.01	-0.06	0.00	0.42	0.65
9	0.00	0.06	0.01	0.20	-0.01	-0.05	0.00	0.37	0.57
10	0.00	0.04	-0.01	0.10	-0.03	-0.07	0.00	0.31	0.34
Total	0.00	0.07	0.00	0.23	-0.01	-0.07	0.00	0.49	0.71

Notes: shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2015, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2016 policies by Eurostat's Harmonized Index of Consumer Prices (HICP).

Figure A1: Policy effects in 2015-2016, using the CPI-indexation, %

Table A2: Policy effects in 2016-2017, using the CPI-indexation, %

Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Other SIC	Direct taxes	Disposable income
1	0.00	0.00	0.53	0.18	0.02	-0.22	0.00	-0.02	0.49
2	0.00	0.05	0.00	0.02	0.01	-0.13	0.00	-0.11	-0.16
3	0.00	0.10	-0.14	0.10	0.01	-0.07	0.00	-0.23	-0.24
4	0.00	-0.14	-0.01	0.09	0.01	-0.06	0.00	-0.18	-0.29
5	0.00	-0.28	0.04	0.05	0.01	-0.07	0.00	-0.13	-0.37
6	0.00	-0.28	0.02	0.04	0.01	-0.06	0.00	-0.12	-0.40
7	0.00	-0.32	-0.01	0.02	0.01	-0.05	0.00	-0.11	-0.46
8	0.00	-0.30	-0.01	0.04	0.01	-0.05	0.00	-0.15	-0.46
9	0.00	-0.37	-0.02	0.02	0.01	-0.05	0.00	-0.08	-0.49
10	0.00	-0.37	0.00	0.00	0.00	-0.06	0.00	0.04	-0.39
Total	0.00	-0.27	0.00	0.04	0.01	-0.06	0.00	-0.09	-0.38

Notes: shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2016, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2017 policies by Eurostat’s Harmonized Index of Consumer Prices (HICP).

Figure A2: Policy effects in 2016-2017, using the CPI-indexation, %

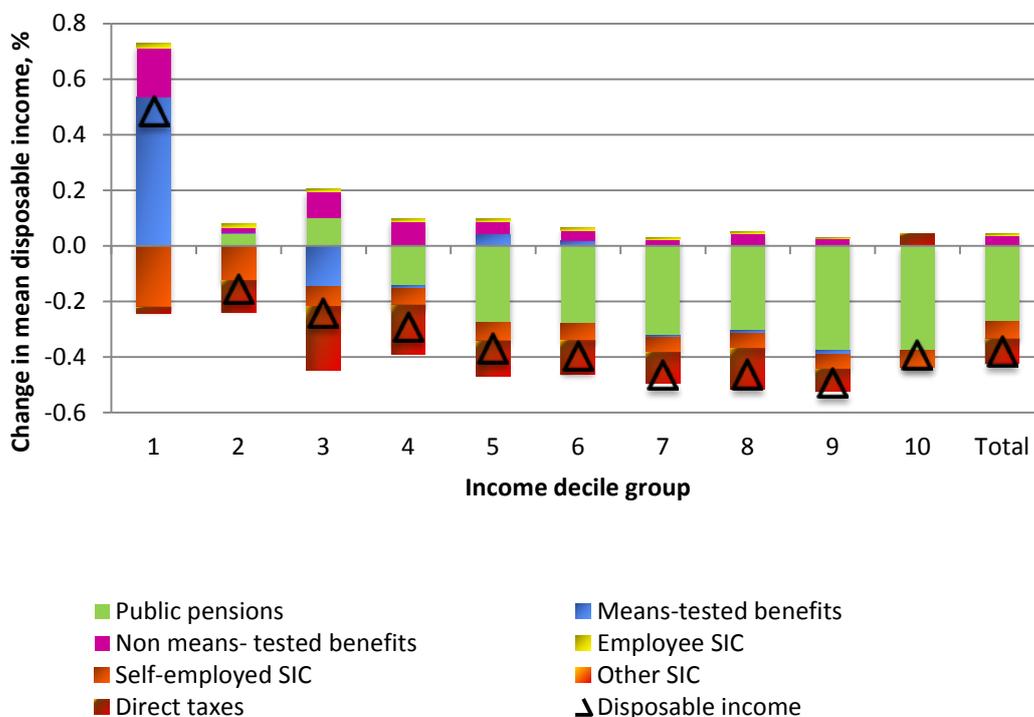


Table A3: Policy effects in 2017-2018, using the CPI-indexation, %

Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Other SIC	Direct taxes	Disposable income
1	0.00	0.12	7.73	-0.01	0.00	-0.22	0.00	-0.04	7.57
2	0.00	0.04	-0.13	-0.01	0.00	-0.13	0.00	-0.13	-0.35
3	0.00	0.02	-0.11	-0.01	0.00	-0.07	0.00	-0.16	-0.32
4	0.00	0.02	-0.05	-0.01	0.00	-0.06	0.00	-0.16	-0.26
5	0.00	0.02	-0.05	0.00	0.00	-0.06	0.00	-0.15	-0.26
6	0.00	0.00	-0.03	0.00	0.00	-0.06	0.00	-0.14	-0.24
7	0.00	-0.01	-0.03	0.00	0.00	-0.06	0.00	-0.13	-0.24
8	0.00	-0.04	-0.03	0.00	0.00	-0.05	0.00	-0.12	-0.25
9	0.00	-0.07	-0.01	0.00	-0.01	-0.05	0.00	-0.11	-0.26
10	0.00	-0.14	0.00	0.00	-0.02	-0.07	0.00	-0.04	-0.28
Total	0.00	-0.04	0.11	0.00	-0.01	-0.07	0.00	-0.11	-0.12

Notes: shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2017, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2018 policies by Eurostat’s Harmonized Index of Consumer Prices (HICP).

Figure A3: Policy effects in 2017-2018, using the CPI-indexation, %

